Abstracts presented at the online meeting of the International Association of Oral and Maxillofacial Pathologists (IAOP) and the British Society for Oral and Maxillofacial Pathology (BSOMP). June 2021

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1	**CLEAR CELL ODONTOGENIC CARCINOMA: REPORT OF 3 NEW CASE AND SUMMURY OF 124 REPORTED CASES**. Abdolrahmani A, Kardooni N (Oral and Maxillofacial Pathology Department, School of Dentistry, Tehran University of Medical Sciences) **Background:** Clear cell odontogenic carcinoma (COCC) is a rare and hard to diagnosis tumor described first by Hansen et al. in 1985. Aggressive clinical behavior, metastasis, low survival rate and difficulty in diagnosis put more emphasis on CCOC. **Objective:** In this study we present clinicopathologic and Immunohistochemical features of 3 new cases of CCOC and summarize the features of currently published cases in order to enhance the diagnosis. **Methods:** A search was performed with keywords of 'CCOC' and 'clear cell odontogenic carcinoma' using the PubMed, Scopus and Science Direct databases from 1985 to 2019. **Results:** Total of 124 cases of CCOC were reported in literature till end of 2019. CCOC is frequently seen in fifth decade with mean age of 55.2 years. It occurs in mandible three times more than maxilla and has significant predilection to female (61.3%). We analysed 3 new cases, 2 females and one male, with mean age of 56.6 years. IHC analysis revealed positive immunoreactivity to EMA, CK7, CK14, CKAE1/AE3, P63, HMW-CK and negative result for CD10, Vimentin, S100. **Conclusion:** Considering reported cases we cannot say that CCOC is too rare anymore but we are still facing a great challenge for diagnosis of this tumor due to its microscopic similarity to other clear cell tumors. Further studies on IHC or gene expression analysis is needed in order to distinguish CCOC from other oral cancers

2	**RELATIONSHIP BETWEEN ORAL MELANOTIC HYPERPIGMENTATION AND SERUM INFLAMMATORY CYTOKINES IN HIV SEROPOSITIVE PATIENTS- A CASE CONTROL STUDY** Abe EO[a], Adisa AO[a], Adeyemi BF[a], Owotade FJ[b] ([a]Dental Center, University College Hospital, Ibadan, Nigeria. [b]Dental Center, Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife, Osun State, Nigeria.) **Background:** Oral Melanotic Hyperpigmentation in HIV patients (HIV-OMH) has been attributed to the use of antifungal agents or antiretroviral drugs; alternatively, HIV- induced cytokine dysregulation causing activation of melanogenesis pathway has been well documented. **Objective:** To assess the level of cytokine dysregulation as a possible biological etiologic factor for oral melanotic hyperpigmentation in newly diagnosed HIV patients. **Methodology:** A case control study conducted, among newly diagnosed HIV seropositive patients yet to commence HAART. Cases were HIV patients with OMH, while control group were age and gender matched HIV patients without OMH. Clinical features and laboratory analysis of CD4 count and cytokine levels (IL-6 and TNF-α) were compared between the OMH and non- OMH groups. **Results:** Participants' ages ranged from 22 to 68 years, with a mean of 42.4±10.7 years. Tongue 34(75.5%) was the most commonly affected site, while multiple sites involvement was seen in 9(25.7%) cases. The mean rank value of TNF-α was slightly higher among the cases (36.24pg/mL), compared to the controls (34.76pg/mL). On the other hand, the mean rank value of IL-6 was lower among the cases (33.93pg/mL), compared to the controls (37.07pg/mL). Thirty-three (94.3%) of the cases and 23(65.7%) of the control group had CD4 count ≤350 cells/mm3 (p= 0.003). **Conclusion:** There was no statistically significant difference in the serum cytokine levels of those with HIV-OMH and those without it. There was a statistically significant relationship between HIV-OMH and severe immunosuppression.

3	**EVALUATION OF CANCER STEM CELL MARKER, BMI-1 EXPRESSION IN ORAL SUBMUCOUS FIBROSIS WITH AND WITHOUT MALIGNANT TRANSFORMATION.** Abeyasinghe WAMUL, Tennakoon PB, Jayasooriya PR (Department of Oral Pathology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka) **Background-** Epithelial-mesenchymal transition plays a crucial role in the pathogenesis of Oral Submucous Fibrosis (OSF) as well as in progression of carcinogenesis while inducing stem-like properties in epithelial cells. Hence it is important to discover possibilities of using stem cell markers to predict malignant transformation (MT) in OSF. **Objective-** To evaluate the cancer stem cell markers Bmi-1 expression, in OSF without MT and carcinomas arising in the back ground of oral submucous fibrosis (CAOSF). **Method-** The sample comprised of 73 cases of OSF without MT and 29 cases of CAOSF. OSF without MT, were graded according to severity of dysplasia (SOD) and degree of fibrosis (DOF), while CAOSF were categorized as exophytic and endophytic lesions. Bmi-1 immunohistochemical staining (Abcam, UK) was performed on 4µm thick tissue sections. Lesions were divided into three groups namely lesions with <50% and >50% Bmi-1 positivity in the epithelium and Bmi-1 negative lesions. X^2 test was used in the statistical analysis. **Results-** Approximately, 42.5% of OSF without MT and 65.5% of CAOSF expressed Bmi-1. Bmi-1 expression was significantly high in CAOSF than OSF cases (X^2=7.63, p<.05) and in enodophytic CAOSF than exophytic CAOSF (X^2=3.91, p<.05). There were no statistically significant relationships with Bmi-1 expression and SOD and DOF in OSF without MT. **Conclusion-** OSF cases expressing Bmi-1 should be carefully followed up for MT as these patients may be more susceptible to develop CAOSF. Further, investigations are necessary to determine if Bmi-1 expression could be used routinely to predict MT in OSF. **Acknowledgment-** NSF research grant RG/HS/001/2017 is gratefully acknowledged

4	**SALIVARY GLAND LESIONS WITH ONCOCYTIC CHANGE: A 20-YEAR RETROSPECTIVE EVALUATION** Adegun OK, Agrawal R and Jay A (Oral and Maxillofacial Pathology Unit, Department of Histopathology, University College London Hospitals, NHS Foundation Trust, London, UK) **Background:** Oncocytic change, a manifestation of abundant mitochondria within a cell, often occurs in salivary gland lesions. This phenomenon is thought to represent an adaptive or metaplastic change associated with increasing age or exposure to agents that induce senescence. A 20-year retrospective study was carried out on salivary gland lesions diagnosed at University College London Hospitals (UCLH) with a view to evaluating the incidence and prevalence of oncocytic change in them. **Objectives:** To characterise the types of salivary gland lesions diagnosed, showing oncocytic change, based on their nature (neoplastic or non-neoplastic) and patient demographics. **Methods:** A database search and analysis were performed on salivary gland lesions from year 2000 to 2020 at UCLH. **Results:** 168 (13.3%) of the 1263 salivary gland lesions showed oncocytic change. 145 (86.3%) were neoplastic, of which 115 (68.5%) benign and 30 (17.9%) malignant lesions. 11 (6.5%) were non-neoplastic lesions and 12 (7.1%) indeterminate as they were core biopsies. Oncocytic change was seen almost exclusively in lesions of the parotid gland (98.8%), whilst the remaining occurred in the submandibular gland (1.2%). 22 (1.7%) oncocytic neoplasms were identified (15 females, 7 males): 8 (0.63%) oncocytomas, 2 (0.16%) oncocytic carcinomas and 12 (0.95%) oncocytic neoplasm NOS (their subtype could not be ascertained from the core biopsy). The patient age ranged between 27- 84 years. **Conclusions:** Oncocytic salivary gland tumours are rare and occur almost exclusively in the parotid gland. There is a female predilection and the mean age at diagnosis was in the sixth decade. The conclusions mirror previous findings in the literature

5	**DIVERSE HISTOMORPHOLOGY OF OSTEOSARCOMA; ILLUSTRATION OF TWELVE CASES**

Jay A[a], Kalavrezos N[b], Sinha D[b], Adegun OK[a] and Agrawal R[a] ([a] Oral and Maxillofacial Pathology Unit, Department of Histopathology, University College London Hospitals, NHS Foundation Trust, London, UK [b] Head and Neck Surgery Department, University College London Hospitals, NHS Foundation Trust, London, UK)

Background: Head and Neck Osteosarcomas are rare and comprise less than 1% of tumours of head and neck. Their management is relegated to specialist Head and Neck centres, which means only a small team of head and neck pathologists get to analyse the resected tumours. Their rarity and the need to identify malignant osteoid in biopsies makes their diagnosis challenging.

Objective: To highlight the varied histomorphology of head and neck osteosarcoma through a pictorial presentation of twelve cases.

Methods: The histology database at University College London Hospital recorded 124 cases of osteosarcoma in 15 years. Histology reports were reviewed to identify cases with varied histomorphology.

Results: Twelve osteosarcomas were selected, three of surface origin and nine of intramedullary origin. Three were chondroblastic, seven osteoblastic and two fibroblastic. Seven of the medullary tumours and two of the surface were high grade, whilst the remaining two medullary and one surface tumours were low grade. Diverse features seen in these cases were psammomatoid calcifications, ganglion-like cells, osteosclerosis, osteoclast-like giant cells and areas resembling benign fibroosseous-lesion, chondromyxoid fibroma, osteochondroma, aneurysmal bone cyst and osteoblastoma.

Conclusion: Diagnosis of intramedullary and surface osteosarcoma relies on identification of malignant osteoid produced by atypical mesenchymal cells. Other features such as myxochondroid stroma, sclerotic bone, pseudocystic spaces, psammomatoid calcifications, fibroblastic proliferation, chondroblastic tissue, epithelioid osteoblastic population, osteoclast-like giant cells and osteochondroma-like presentation can be misleading leading to aberrant diagnosis such as benign fibroosseous lesion, aneurysmal bone cyst, osteoblastoma and osteochondroma.

6	**CHLAMYDIA TRACHOMATIS EXPRESSES PHYLOGENETICALLY HOMOLOGOUS PROTEINS TO HUMAN PAPILLOMA VIRUS TYPE 16: INFERENCES FOR ORAL AND ORO-PHARYNGEAL SQUAMOUS CELL CARCINOMA.** Oboli GO[a], Abe EO[b], Adisa AO[a,b] ([a] University of Ibadan, Ibadan, Nigeria, [b] Oral Pathology Department, University College Hospital, Ibadan, Nigeria **Background:** Oral and oro-pharyngeal squamous cell carcinoma (OSCC) have been linked to infection by HPV types 16 and 18. They produce proteins E6 and E7 that interfere with p53 and pRb1 proteins and hence support oncogenesis. HPV infection is typically via oro-genital contact and other organisms co-habiting the genitalia may have had sufficient time for a genetic exchange with HPV oncoproteins and hence develop oncogenic potential also within the oral cavity. **Objective**: Our aim was to search for organisms with homologous match for HPV 16 E6/E7 protein sequences. **Methods:** HPV 16 sequences were obtained from NCBI database. E6 and E7 homologous sequences with accession numbers >ACQ90217 and >ACQ90218 were retrieved through BLAST search. The SWISS-MODEL template library was searched with BLAST and HHBlits for evolutionary related structures matching the target sequence. Utilizing the MPI Bioinformatics remote homology detection method linked with UniProt database, best matches of E6 and E7 protein sequences were retrieved. Multiple sequence alignment was done and ProMod3 was used to build a protein model for E7. **Results:** HPV 16 E7 protein and Chlamydia trachomatis homologous protein sequences were the most closely related from our bioinformatic search. **Conclusion:** This similarity between C. trachomatis proteins and HPV 16 E7 oncogenic proteins could be because both organisms inhabit similar mucosae and have had considerable time to 'exchange' genes. We postulate that a possible co-infection of C. trachomatis may be implicated in the development of OSCC as documented with cervical cancers.

7	**ORAL VERRUCOUS LESIONS - A DIAGNOSTIC DILEMMA: A 10-YEAR INSTITUTIONAL EXPERIENCE AND LITERATURE REVIEW** Agrawal R, Jay A, Adegun, O. (Department of Cellular Pathology, University College London Hospitals, London, United Kingdom) **Background:** Oral verrucous-papillary lesions (including Proliferative Verrucous Leukoplakia (PVL)) with malignant potential/frankly malignant are assigned diverse terminology resulting from lack of standard clinical and histological diagnostic criteria, with implications for management. **Objectives:** To review the range of terminology employed at one institution in diagnosing verrucous-papillary lesions of the oral cavity. **Methods:** A single institution's archives were searched for oral cases diagnosed as 'verrucous', 'verruciform', 'verrucoid', 'squamoproliferative' over a 10-year period (2010-2020). **Results:** 181 specimens from 146 cases were identified. 69 (47%) were female; 77 (53%) were male; 101 cases (70%) were diagnosed in the 6^{th}-8^{th} decades. Common oral sites were mandibular alveolar ridge/gingiva (25%), buccal mucosa (18%), maxillary alveolar ridge/gingiva (17%) and tongue (17%). The histopathological diagnosis ranged from 'verrucous hyperkeratosis (VH) with no/mild/moderate dysplasia' (60%) to 'VH with severe dysplasia/squamous cell carcinoma (SCC)-in-situ' (12%), 'conventional SCC' (12%) and one explicitly identified as verrucous carcinoma (VC). 23 cases (16%) could be retrospectively described as PVL based on multiple sites and protracted clinical course, of which 19 (83%) progressed to severe dysplasia/SCC-in-situ/SCC. **Conclusion:** The demographic profile echoes some variation described in the literature. The range of terminology not only mirrors the literature but highlights the challenges encountered by pathologists in diagnosing these lesions: not just in assigning lesions as VH with/without dysplasia, but also in distinguishing them from VC/SCC. Our experience lends further support to the call for creation and adoption of standardised criteria and terminology to reflect the complex biological, clinical, histopathological and management implications of these entities.

8	**PLASTINATION, THE IDEAL METHOD TO PRESERVE SURGICAL SPECIMENS IN ORAL PATHOLOGY** Aldape B,[1] Diéguez L, [1] Candanosa IE.[2] ([1]UNAM School of Dentistry, [2]UNAM School of Veterinary) **BACKGOUND:** Plastination is a procedure created in 1977 by anatomist Gunther von Hagens at the University of Heidelberg in Germany and it is aimed to preserve biological tissue specimens. This technique is based on the substitution of body fluids (water, lipids) by polymers that indefinitely allow the material preservation, without damaging its structure and rendering an easy manipulation for further study. **OBJETIVES:** The S-10 plastination technique was applied on 13 surgical specimens obtained from a private Oral Pathology service. **METHODS:** The histological diagnosis for the 13 surgical samples were ameloblastoma, myxoma and osteomyelitis. These samples were fixed and preserved in 10% formalin. Surgical specimens were dimensionally measured and photographs were taken before and after the S-10 plastination procedure. The processing is Fixation, Cleansing, Dehydration, Impregnation, Pre-Curing, Curing. An after the plastination, the Tomography 3D reconstruction was made to compare features before and after the technique S10 plastination. **RESULTS:** The 13 preserved surgical specimens were obtained from the S-10 plastination technique. A Cone Beam Computed Tomography (CBCT) was acquired for the three-dimensional reconstruction and imaging description. Finally, descriptive sheets from each surgical specimen were elaborated. The latter will function as didactic material. **CONCLUSIONS:** The plastination technique allows the direct handling of surgical specimens, without jeopardizing their structure. Other relevant advantage is that the preserved specimens might be used as didactic material to show diverse lesions and to observe their macroscopic features with full detail. Moreover, this technique allows the permanent storage of the specimens without using polluting materials.

9	**2 PEAS IN A POD: AN INCIDENTAL FINDING OF SCLEROSING POLYCYSTIC ADENOSIS WITHIN A PLEOMORPHIC ADENOMA** AlGhamdi S[a], Alfurhud A[a], Khurram SA[a], Omari AA[b]. ([a] Unit of Oral and Maxillofacial Pathology, School of Clinical Dentistry, University of Sheffield, Sheffield, UK. [b] Department of Histopathology, Royal Hallamshire Hospital, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, UK) **Background:** A 55-year-old male was urgently referred to the local ENT surgery department with a 1 cm left parotid lump. Initial core biopsy was suggestive of a pleomorphic adenoma with some 'atypical' features. The patient underwent a left parotidectomy. **Case Description:** Macroscopic examination showed an intact capsule. Histology showed a small well-defined and encapsulated tumour composed showing the classical appearance of a pleomorphic adenoma for the most part exhibiting bilayered ducts and mucomyxoid stroma. Towards the periphery, a microcystic pattern was seen with luminal secretory material, prominent apocrine changes and focal stromal sclerosis with some nuclear and cellular atypia but no evidence of frank malignancy. Immunohistochemistry for p63, SMA and S100 highlighted the myoepithelial cells whereas Cam5.2 decorated the luminal cells. Ki67 showed a very low perforation index (<1%). Staining for GCDFP and AR was strong and diffuse within the apocrine and sclerotic areas but lacking within the background pleomorphic adenoma. A final diagnosis of sclerosing polycystic adenosis (SPA) within a pleomorphic adenoma was made. **Conclusion:** The present case is the first of its kind to show a discrete SPA within a pleomorphic adenoma. SPA is an uncommon recently described salivary gland condition which was initially presumed to be inflammatory in nature and resembles fibrocystic breast disease. It appears to harbour Human Androgen Receptor monoclonality with recent reports suggesting that it should be reclassified as a benign neoplasm. The atypia usually present within a SPA can be easily mistaken for a malignancy, requiring careful histopathological examination.

10	**A RARE CASE OF CHEILITIS GLANDULARIS AFFECTING THE UPPER LIP: CASE REPORT AND LITERATURE REVIEW**

Ali AS, Khan Z, Pemberton M. (Oral Medicine Department, School of Dentistry, Higher Cambridge St, Manchester, M15 6FH, UK)

Background: Cheilitis glandularis (CG) is an uncommon inflammatory disease that affects minor salivary glands, predominantly reported of the lower lips. Cheilitis glandularis has clinical and pathological features similar to that of Stomatitis glandularis (SG). The authors differentiated the two because the affected sites in SG are not limited to the lower lip.

Case Report: A 76-year-old female reported symptoms of repeated upper lip swelling with draining sinuses. She was referred by her general dental practitioner to the oral medicine department of University Dental Hospital of Manchester in 2003. On examination the labial mucosa adjacent to upper right canine and first premolar contained three puncti overlying well-defined, firm, mobile, non-tender swellings. The minor salivary gland swellings were treated by excisional biopsies on two occasions over 15 years due to recurrences. Histopathological examination showed features consistent with SG.

Discussion: Stomatitis glandularis, including cases affecting the upper lip, appear to be rarely reported in the literature. Cheilitis glandularis affecting the lower lip is much more frequently reported. Cheilitis glandularis is associated with the development of squamous cell carcinoma, but it is unclear whether SG has premalignant potential.

Conclusion: The two glandularis conditions appear to be a continuum of the same disease process differing only at the anatomical site of the affliction. The reported link between CG and development of SCC are tenuous and the authors have described a theory suggesting concomitance rather than a precursor to the malignant condition.

11	**PERINEURAL INVASION IN ORAL SQUAMOUS CELL CARCINOMA: INCIDENCE, CLINICAL IMPACT AND MOLECULAR INSIGHT** Alkhadar H, Macluskey M, White S, Ellis I (School of Dentistry, University of Dundee, UK) **Background:** Perineural invasion (PNI) has been associated with poor prognosis in oral squamous cell carcinoma (OSCC). Nerve growth factor (NGF) and its receptor tyrosine Kinase A (TrkA) may play a role in PNI in OSCC. **Objectives:** To characterize the incidence and prognostic correlation of PNI in OSCC, and to determine whether NGF and TrkA expressions could be used as biological markers for PNI in OSCC. **Methods:** Retrospective review was undertaken of pathology reports of 430 patients with OSCC who treated from 1992 to 2014 in Tayside, Scotland and followed for 5-years or until death. The expression of NGF and TrkA assessed with immunohistochemistry in 132 tissue sections of OSCC. **Results**: PNI was identified in 17.4% of OSCC. High expression of NGF and TrkA was seen in 84% and 92% of OSCC respectively. PNI-positive OSCC expressed NGF and TrkA with greater frequency than PNI-negative OSCC ($p<0.05$). PNI and high expression of NGF were associated significantly with pain in OSCC ($p<0.05$). PNI-positive OSCC and high NGF/TrkA expression exhibited a greater potential for lymphovascular invasion and depth of invasion >4mm ($p<0.05$). PNI was significantly associated with advanced size, nodal metastasis, poor differentiation, and stage IV tumours ($p<0.05$). PNI correlated significantly with disease specific-survival in OSCC ($p<0.05$). **Conclusions:** Higher level of expression of NGF and TrkA many predict PNI and therefore may be considered as biological markers for PNI in OSCC. Pain could be a predictive for PNI and NGF overexpression. PNI and NGF expression can predict the aggressiveness and prognosis of OSCC patients

12	**GOLD–NANOPARTICLES REFLECTANCE DISCRIMINATE BENIGN FROM MALIGNANT SALIVARY GLAND NEOPLASMS** Sudri S[a] , Allon I[b], Abu El-Naaj I[a] , Fixler D[c], Hirshberg A[d] ([a]Oral and Cranio-maxillofacial Surgery, B Padeh Medical Center, Poriya, Israel. [b]Institute of Pathology, Barzilai University Medical Center. Ben Gurion, University of the Negev, Beer Sheba, Israel. [c]Faculty of Engineering and Institute of Nanotechnology and Advanced Materials, Bar Ilan University, Ramat Gan, Israel. [d]Department of Oral Pathology and Oral Medicine, The Maurice and Gabriela Goldschleger School of Dental Medicine, Tel Aviv University. Israel) **Background:** Nanoparticle-based contrast agents have been used as an imaging tool for selectively detecting cancerous processes. Epidermal growth factor receptor (EGFR) has been found to be dysregulate in malignant salivary gland tumors (MSGT) and can be served as an ideal target for nanoparticle-based contrast agents using gold nanoparticles (GNPs) bio-conjugated to anti-EGFR monoclonal antibodies. **Objective:** To evaluate the detection sensitivity of reflection measurements of anti EGFR conjugated gold nanoparticles (C-GNPs) in discriminating benign from MSGT. **Methods:** Tissue sections of 37 cases were investigate, 19 of MSGT and 9 cases of benign tumors and 9 normal salivary glands were incubated with C-GNPs and the reflectance spectrum was measured using hyperspectral microscopy. **Results:** A significant trend has been found to correlate the severity of the lesions (Cuzick trend test, Prob = 0.018). Reflectance intensity was significantly higher ($p<0.001$) in cases of MSGT comparing with the benign tumors and control group. Lowest results were measured in control group and increasing as the dysplastic changes increase. **Conclusion**: The GNPs reflection measurements were able to discriminate benign from MSGT suggesting an objective, non-technique-sensitive method that is not dependent on the qualification of a technician and with fewer interpretation errors.

13	**NOVEL ADVANCES IN STAGING AND GRADING OF EARLY ORAL TONGUE CANCER: A MULTICENTRE STUDY**

Almangush A[a], Coletta RD[b], Mäkitie AA[c], Salo T[d], Leivo I[e] **(**[a]Department of Pathology, University of Helsinki, Helsinki, Finland. [b]Department of Oral Diagnosis, School of Dentistry, University of Campinas, Piracicaba, São Paulo, Brazil. [c]Department of Otorhinolaryngology – Head and Neck Surgery, University of Helsinki and Helsinki University Hospital, Helsinki, Finland. [d]Department of Pathology, University of Helsinki, Helsinki, Finland. [e]Institute of Biomedicine, Pathology, University of Turku, Turku, Finland).

Background: Recent research has proposed modifications for the TNM staging and the World Health Organization (WHO) histopathologic grading system of oral cancer.

Objectives: 1) To study the significance of different cut off points of depth of invasion (DOI) in T classification. 2) To study the incorporation of tumour budding to modify the WHO grading system.

Methods: In this multi-institutional study, we included 311 cases treated for early (cT1-2N0M0) oral tongue squamous cell carcinoma (OTSCC) at the five university hospitals in Finland or at the A.C. Camargo Cancer Centre, São Paulo, Brazil. We suggest using 2 mm DOI to upstage to T2 and 4 mm DOI to upstage to T3. For histopathologic grading, our proposal incorporates tumour budding and defines Grade I as a "well-differentiated cohesive tumour"; grade II as a "moderately-differentiated and/or slightly-dissociated tumour"; and grade III as a "poorly-differentiated and/or dissociated tumour".

Results: There was a significantly improved performance in identification of the high-risk cases for recurrence (hazard ratio [HR] 2.08, 95% confidence interval [CI] 1.07-4.01, $P = 0.03$) and cancer-related mortality (HR 2.21, 95% CI 1.05-4.64, $P = 0.036$) based on our proposed adjustment of the T stage. Similarly, the proposed histopathologic grade showed worse survival (HR 3.42, 95% CI 1.23-9.56, $P = 0.001$) and a high rate of recurrence (HR 1.85, 95% CI 0.91-3.76, $P = 0.024$) for cases having poorly-differentiated and/or dissociated tumours.

Conclusion: Our proposed adjustments for staging and grading criteria could improve the risk stratification in early OTSCC.

14	**NOVEL NEUROPILIN 2-TARGETING BIOLOGIC FOR THE TREATMENT OF ORAL SQUAMOUS CELL CARCINOMA**

Almazyad AM [a, b], Gao Y [b, g], Shahrabi-Farahani S [d], Gartung A [e, f, h], Sui L [b, g], Das R [i], Costea DE [I], Watnick RS [b, g], Panigrahy D [e, f, h], Adam RM [c, g], Bielenberg DR [b, g] ([a]Department of Oral Medicine, Infection, and Immunity; Harvard School of Dental Medicine. [b]Vascular Biology Program, [c]Department of Urology Research; Boston Children's Hospital. [d]Department of Diagnostic Sciences and Oral Medicine; University of Tennessee Health Science Center. [e]Center for Vascular Biology Research, [f]Cancer Center; Beth Israel Deaconess Medical Center. [g]Department of Surgery, [h]Department of Pathology; Harvard Medical School. [i]Gade Laboratory for Pathology, University of Bergen).

Background: Oral squamous cell carcinoma (OSCC) is the 6th most common cancer and a leading cause of cancer mortality in some countries. Recently, our laboratory identified the Neuropilin-2 (NRP2) transmembrane glycoprotein as a novel target in OSCC and its associated vasculature in patient biopsies and mouse carcinogenesis models. NRP2 is a co-receptor for the angiogenic factor VEGF-A with VEGFR2 and the lymphangiogenic factors VEGF-C/D with VEGFR3 and is abundantly expressed in growing endothelium. NRP2 also has an alternative ligand called Semaphorin-3F (SEMA3F) that competes with VEGF proteins and inhibits angiogenesis, lymphangiogenesis, and cell motility. **Objective:** To examine the effects of exogenous SEMA3F protein on tumorigenicity, neovascularization and metastasis in OSCC models.

Methods/Results: We engineered and purified a biologically active, mutant (non-cleavable) SEMA3F protein. *In vitro,* SEMA3F inhibited the migration and invasion of Nrp2-expressing mouse OSCC cells (WT3) originally isolated from 4NQO-induced tumors. *In vivo,* WT3 luciferase-labelled cells were injected into the tongues of C57BI/6 mice or human OSCC (HSC3) cells were injected into the tongues of immunodeficient (athymic) mice. Slow-release osmotic pumps containing SEMA3F or vehicle were implanted into mice with established mouse or human OSCC tumors. Systemic SEMA3F protein induced complete regression, as confirmed by bioluminescence imaging and histologic examination, of OSCC in the majority of immunocompetent mice in just 14 days. In immunodeficient mice, systemic SEMA3F treatment inhibited human OSCC tumorigenicity and reduced tumor-associated lymphangiogenesis compared to control.

Conclusion: SEMA3F is a promising anti-tumor therapy specifically targeting the NRP2 axis in carcinoma cells and stromal cells.

15	**CHONDROID SYRINGOMA WITH EXTENSIVE MATURE BONE AND CARTILAGE FORMATION: A CASE REPORT AND REVIEW OF THE LITERATURE** Ali Al-Omari (Sheffield Teaching Hospitals NHSFT) **Background & objectives:** Chondroid syringoma is a rare, skin adnexal tumour, mostly involves the head and neck region. It is usually present as a skin painless nodule. We present a rare case of chondroid syringoma with extensive mature bone and cartilage formation. **Methods:** Chondroid syringoma is a rare, skin adnexal tumour, mostly involves the head and neck region. It is usually present as a skin painless nodule. The histopathological are usually composed of variable mixture of epithelial and myoepithelial structures on a background of chondromyxoid and fibrous stroma. It rarely shows mature bone or cartilage formation. **Results:** To the best of our knowledge, only several cases of chondroid syringoma with bone formation and few cases of chondroid syringoma with cartilage formation have been reported in published studies up to date. Here, we report a case of chondroid syringoma with extensive mature bone and cartilage formation which is probably the first reported case showing this mixture of appearances. **Conclusion:** Histopathologically, the presence of tumour with extensive mature bone and cartilage formation may cause diagnostic difficulties and wide differential diagnosis. Therefore, awareness of this rare entity can be helpful to avoid future diagnostic pitfalls, particularly when the appearances are unusual.

16	**METASTATIC MEDULLOBLASTOMA TO THE MANDIBLE: A CASE REPORT** Alotaiby F [a], Bhattacharyya I [b], Fatani H [c]. ([a] Oral and Maxillofacial Surgery and Diagnostic Sciences, College of Dentistry, Qassim University. [b] University of Florida College of Dentistry. [c] Anatomic Pathology, King Fahad Medical City) **Introduction:** Medulloblastoma is the most common tumor of the brain in children of neuroendocrine origin, which typically demonstrates an aggressive relentless clinical behavior and high recurrence rate. Extra-neuraxial metastasis of medulloblastoma to the jaw is extremely rare with less than ten cases reported in the literature. **Case Report:** A 10-year-old male patient presented with a swelling in the right side of the face for 15 days. The patient had a past history of medulloblastoma diagnosed a few years earlier. Clinical examination revealed a diffuse painless mass in the right mandible. Multiplaner reconstruction demonstrated a 1.5 x 1.5 cm well-defined round lesion with extensive necrosis involving mostly the ramus of right mandible with resultant bone erosion on the lingual aspect. The lesion involved the regional structures including maxillary sinus, pterygoid process, and carotid sheath. Microscopic examination of the biopsy specimen exhibited sheets of poorly differentiated malignant small round blue cells with extensive necrosis. The tumor cells revealed moulding of nuclei with speckled chromatin and inconspicuous cytoplasm. Evidence of vascular and perineural invasion was noted. Immunohistochemical studies demonstrated weak granular positivity for synaptophysin, but staining for AE1/3, desmin, CD99 and LCA were negative in the lesion tissue. A diagnosis of round blue cell malignancy of neuroendocrine origin compatible with medulloblastoma, metastatic to the jaw was rendered. Our case represents only the tenth such as case in the English language literature. Due to the rarity of this entity, a more accurate understanding of the prognosis and treatment of metastatic medulloblastoma is not well known.

17	**SALIVARY MICRORNA 155, 146a/b AND 203: A POTENTIAL NON-INVASIVE DIAGNOSTIC BIOMARKERS OF PERIODONTITIS AND DIABETES** Al-Rawi NH[a], Al –Marzooq F [b] , Hamoudi R[c] ([a] Oral & Craniofacial Health Sciences Dept., College of Dental Medicine, University of Sharjah, UAE. [b] Medical Microbiology & Immunology Dept. College of Medicine and Health Sciences, UAEU. Al Ain, UAE. [c] Sharjah Institute for Medical Researches, College of Medicine, University of Sharjah, UAE) **Background**: Dysregulated expression of MicroRNAs (miR) plays important role in the initiation and progression of both diabetes and periodontitis. **Objectives:** The aim of the study is to identify miRNAs in saliva as potential predictive biomarkers of periodontal disease among patients with diabetes mellitus (DM). **Methods**: MiRNAs were extracted from the saliva of 24 adult subjects with DM and 27 age and sex-matched healthy controls. Each group was subdivided into periodontally healthy or having periodontitis. In silico analysis identified 4 miRNAs (miRNA 155, 146 a/b and 203) as immune modulators. The expression of miRNAs-146a/b, 155, and 203 was tested using quantitative PCR. The expression levels in the study groups were compared to explore the effect of diabetes and/or periodontitis. **Results:** In our cohort, the four miRNAs expression were higher in patients with periodontitis and/or diabetes. miRNA -155 and miRNA 146 a/b were the most reliable predictors of periodontitis among non-diabetics with an optimum cut-off value of < 8.97 for miRNA -155; 11.32 for miRNA -146b and miRNA -146a was the only reliable predictor of periodontitis among subjects with diabetes with optimum cut-off value of ≥11.04. **Conclusion:** miRNA -146a/b,155, and 203 in saliva provide reliable, non-invasive, diagnostic biomarkers that can be used to monitor periodontal health status among diabetic and non-diabetic patients.

18	**ORAL MUCOSAL LESIONS IN PATIENTS FROM CLINICS OF SCHOOL OF DENTISTRY, UNIVERSITY OF ANTIOQUIA, MEDELLÍN, COLOMBIA**

Álvarez Gómez GJ, Rodríguez Montoya GP, Posada López A, Saldarriaga Saldarriaga A, Toro Alzate M, Sánchez Muñoz L. (School of Dentistry, University of Antioquia. Medellín. Colombia).

Background: In our knowledge, there are no studies in Colombia that describes the frequency of oral mucosal lesions. Only the ENSAB IV evaluated potentially malignant lesions and lesions associated to removable prosthesis.

Objective: The aim of this study was to determine the frequency of oral mucosal lesions and their risk indicators in patients attending clinics of School of Dentistry, University of Antioquia (UASD).

Methods: Structured interviews, clinical examination and a biopsy, if deemed necessary, were conducted in a non-probabilistic sample of 539 patients.

Results: 840 mucosal lesions were found in 409 patients (75.9%). The average age was 35.26 years (SD: 23.4); 69.7% of subjects were female. The most frequency lesions were exfoliative cheilitis (17.4%), frictional keratosis (15.4%) and vascular lesions (11.5%). In exploring the relationship between the number of lesions and sociodemographic characteristics and habits, a correlation was found with age (p = 0.001), use of removable appliances (p = 0.042), type of appliance (p = 0.001), and the variable "you have seen or felt something in your mouth" (p = 0.004).

Conclusions: The most frequent lesions in this study were exfoliative cheilitis. There were a low percentage of potentially malignant disorders, and no malignant lesions were found. In the teaching programs of dentistry and even to establish the diagnosis of presumption, it is necessary to know the frequency of lesions of the oral mucosa of the region.

19	***IN SITU* DETECTION OF CRTC-MAML2 TRANSLOCATION EXPRESSION IN MUCOEPIDERMOID CARCINOMA** Amoura EB[1], Hunter KD[1], Bingle CD[2], Bingle LB[1] ([1]Unit of Oral and Maxillofacial Pathology, School of Clinical Dentistry, The University of Sheffield, [2]Department of Infection, Immunity & Cardiovascular Disease, Medical School, The University of Sheffield) **Background**: The heterogeneity of salivary gland neoplasms, within and between histological types, presents a major diagnostic challenge. Mucoepidermoid carcinoma (MEC), the most common salivary gland cancer in adults, children and adolescents, is associated with the presence of a novel CRTC1-MAML2 fusion gene. The translocation can be detected by FISH or RT-PCR but without information regarding transcript level, identification of the cell type(s) harbouring the translocation and histological architecture is not preserved. This study describes, for the first time, a novel, *in situ*, chromogenic assay, BaseScope, to detect CRTC1-MAML2 translocation expression. **Objectives:** Design a novel BaseScope probe targeting the novel exon-exon junction in the CRTC1-MAML2 fusion transcript, determine expression levels of the transcript and identify specific cell types harbouring the translocation. **Methods:** Formalin-Fixed Paraffin-Embedded patient tissue and known fusion positive and negative human MEC cells were subjected to the assay. **Results:** The CRTC1-MAML2 RNA transcript was detected in known fusion-positive cells but not in fusion negative cells. In MEC patient tissues distinct fusion events, in the form of punctate red dots, were detected in all tumour grades and all cell types. Interestingly, the translocation was specifically identified in tumour cells that had direct contact with tumour stroma or nerve invasion. No positive staining was seen in normal tissue or surrounding stroma and no unique morphological features were noted in negative cases. **Conclusion:** The BaseScope assay accurately detects the CRTC1-MAML2 fusion translocation and thus provides an alternative chromogenic technique, for easy use in routine clinical labs, to aid accurate diagnosis of MEC.

20	**ORAL SECONDARY SYPHILIS IN PEOPLE LIVING WITH HIV: A 16-YEAR EXPERIENCE IN MEXICO CITY.**

Anaya-Saavedra G, Castillejos-García I, Maldonado-Mendoza J, Ramírez-Amador V (Oral Pathology and Medicine Postgraduate Program, Universidad Autónoma Metropolitana).

Background: The increase in syphilis rates worldwide, particularly in people living with HIV (PLWH), as well as the challenging diagnosis that secondary syphilis represents, make essential the accurate recognition of its manifestations, particularly in easy-access sites like the oral mucosa.

Objective: To describe the clinic-pathological spectrum of oral secondary syphilis (OSS) in PLWH.

Methods: Cross-sectional and descriptive study that included PLWH with OSS from three HIV- referral centers in Mexico City (2004-2020). Demographic and clinical data were obtained. A comprehensive oral examination was done. OSS were diagnosed following established criteria. Histopathological/cytological procedures were performed to rule specific oral lesions. In all patients, Venereal Disease Research Laboratory (VDRL) test was assessed, and if possible, a confirmatory fluorescent treponemal antibody test (FTA-Abs) or biopsy were performed. The statistical analysis was done using the SPSS v25 software.

Results: Forty-seven PLWH with OSS (97.8% males, median age: 32 years, 63.8% in AIDS) were included. Thirty-five (74.5%) were receiving cART (median of 1146 [Q_1-Q_3:337.5-1971] days) with a median CD4+ count of 385 (Q_1-Q_3:223-664) cell/mm^3, and a Log_{10} HIV-viral load of 4.1 (Q_1-Q_3:3.7-5.3) copies/ml. Forty (85.1%) complete clinical-serological diagnosis (17 had histopathological confirmation), 7 presented clinical-histopathological diagnosis. Twenty-nine (61.7%) individuals presented one lesion, being mucous patch the commonest type mainly on oropharyngeal mucosa, followed by ulcers and macular lesions. Ten (21.3%) patients presented maculopapular dermatosis.

Conclusions: In PLWH, oral lesions particularly mucous patch and/or ulcers on the oral and oropharyngeal mucosa must alert specialists to consider syphilis diagnosis and perform a comprehensive panel of confirmatory tests.

21	**DETERMINATION OF SINGLE NUCLEOTIDE POLYMORPHISM (RS566926) OF WNT5A IN NON-SYNDROMIC CLEFT LIP AND PALATE IN PAKISTANI POPULATION.**

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Background: Orofacial clefts are the commonest birth defects affecting 1 in 750 live births worldwide. Various genetic loci to be involved in NSCL&P has been identified with a variation among populations. Wnt5a is expressed in the frontonasal prominence and maxillary process, which fuse to form the primary palate. So its dysregulation can lead to certain birth defects along with other diseases. Single nucleotide polymorphism (rs566926) in Wnt5A shows significant association with NSCL&P in Brazilian and European American populations.

Objective: The aim of the present study was to describe SNP (rs566926) in non-syndromic cleft lip and palate patients in Pakistani population.

Methods: This study was conducted on 120 patients with non-syndromic cleft lip and palate. Demographics and phenotypes were noted. Samples of blood from the patients were collected in EDTA vials. DNA was extracted followed by conventional PCR. SNP (566926) was determine by Sanger sequencing. Data was analysed by using NCBI Blast and SPSS (24.0).

Results: According to preliminary results of n=30 patients, the mean age was 51.33 ±61.33 months. There were (60%) males and (40%) females. Regarding cleft types, 70% were both cleft lip and palate, 26% cleft lip only and 3.3% cleft palate only. Heterozygous polymorphism (T/G) was seen in (33.3%) patients having both cleft lip and palate with bilateral involvement. While Heterozygous polymorphism (T) was seen in (16.6%).

Conclusion: SNP in WNT5A gene is associated with cleft lip and palate supporting its involvement in pathogenesis of cleft lip and palate. Further studies are recommended know about role of Wnt5a genes during craniofacial development.

22	**PD-L1 AND FOXP3 EXPRESSION IN ORAL DYSPLASTIC TISSUES AND ORAL SQUAMOUS CELL CARCINOMA** Arora S, Wan ZT, Dong F, Kalmadin NI, De Silva H, Seo B, Hussaini HM, Rich AM. (Sir John Walsh Research Institute, School of Dentistry, University of Otago, Dunedin, New Zealand) **Background:** Oral squamous cell carcinoma (OSCC) is an aggressive, highly immunosuppressive cancer with a high mortality rate. Interactions between Programmed-Death 1 (PD-1) (on T cells) and Programmed-Death Ligand 1 (PD-L1) (on tumour cells) within the tumour microenvironment facilitates T-lymphocyte exhaustion. Regulatory T cells (Treg) are a distinct lymphocyte population, expressing the transcription factor forkhead homeobox protein-3 (FoxP3) which downregulate immune responses in OSCC. PD-L1^{+} tumour cells and FoxP3^{+}Treg expression in OSCC has been associated with poor prognosis. This research investigates the expression of PD-L1^{+} cells and Tregs in control, dysplastic and OSCC tissues. **Objectives:** To investigate and compare the expression of PD-L1^{+} tumour cells and FoxP3^{+} Tregs in non-dysplastic tisssue, dysplastic tissue and OSCC using immunohistochemistry (IHC). **Methods:** IHC was performed on formalin-fixed, paraffin-embedded, archival tissues. Qualitative and quantitative analyses of positively stained cells were undertaken and the dysplastic (n = 20) and OSCC groups (n = 20) were compared against the non-dysplastic control group (n = 20), using image analysis **Results:** A higher proportion score and immunoreactive score for PD-L1^{+} and FoxP3^{+} Tregs was found in OSCC and dysplastic groups when compared to the non-dysplastic control group ($p<0.05$). There was no significant difference between the OSCC and dysplastic tissues. **Conclusion:** Significantly more PD-L1^{+} cells and Tregs were detected in dysplastic and OSCC tissues. An increase in PD-L1 and FoxP3 expression may serve as an indicator of progression from normal to a potentially malignant lesion.

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AN *IN VITRO* EXAMINATION OF OSCC-DERIVED EXOSOMES

Aziz MA [a], Seo B[a], Hussaini HM[a], Hibma M[b], Rich AM[a]. ([a] Sir John Walsh Research Institute, University of Otago, New Zealand. [b] Pathology Department, University of Otago, New Zealand).

Background: Exosomes are membrane bound nano-vesicles released by cells into their extracellular environment. Exosomes influence cancer metastasis. The RNA levels of oncogenes within exosomes derived from cancer cells may thus provide a useful source for monitoring cancer progression and deploying early intervention.

Objectives: To compare the RNA levels of FOXM1, DNMT1, HOXA7, CCNB1 and HSPA1A in exosomes from normal primary gingival keratinocyte (PGK) and oral squamous cell carcinoma (OSCC) cell lines.

Methods: Exosomes derived from PGK and OSCC cell lines (SCC4 and SCC25) were isolated using ultracentrifugation and their presence confirmed by Cryo-TEM. The exosomal RNA was extracted and subjected to reverse transcription quantitative PCR (RT-qPCR) for mRNA analysis.

Results: Cryo-TEM revealed bilayered structures measuring 50-200 nm, consistent with the expected size of exosomes. Transcripts for the genes-of-interest (GOI) were detected in the OSCC cells (mean $2^{-\Delta CT}$: 0.1563, 0.0111, 0.011, 0.1062 and 0.58 respectively) and exosomes (mean $2^{-\Delta CT}$: 0.3564, 0.0036, 0.0458, 0.0718 and 0.7252 respectively). HOXA7 was not detected in PGK. Of the remaining GOIs, more RNA was detected in the OSCC cells (mean fold up-regulations of 4.44, 2.80, 2.28 and 2.90 respectively) and OSCC exosomes (mean fold up-regulations of 6.33, 2.20, 3.16 and 5.75 respectively) when compared with the PGK cells and exosomes.

Conclusions: The results provide the first evidence that there is more FOXM1 and HSPA1A RNA in OSCC exosomes compared with PGK exosomes. These results will be used for *ex vivo* studies comparing exosomes in saliva and blood samples from normal and OSCC patients.

24	**UNUSUAL PATHWAY OF DIAGNOSIS OF A RARE CASE: PERIPHERAL AMELOBLASTOMA** Bains AB, Arafat A, Anjum K (Royal Preston Hospital, Lancashire Teaching Hospitals NHS Trust) **Background:** This case report goes on to highlight the varying differential diagnoses which finally led to the diagnosis of the peripheral ameloblastoma. It goes through the unexpected journey in reaching the diagnosis of this particular patient due to varying presentations, and unexpected findings. **Discussion:** A 75 year old lady was referred to Royal Lancaster Infirmary maxillofacial surgery under the two week HSC pathway for a right buccal swelling. The patient was referred by her GDP for the lump adjacent to the upper right maxillary tuberosity. The patient had bleeding from the lesion intermittently, raising suspicion of a possible malignancy. An incisional biopsy was performed and the initial impression for histology was cylindroma or eccrine spiral adenoma however the histopathologist went on to confirm the specimen was from the oral mucosa and a working diagnosis of low grade salivary type neoplasm was reached. An excisional right buccal sulcus biopsy of the lesion was performed which showed infiltration of a basaloid tumour arising from squamous epithelium. The tumour islands were composed of basaloid tumour cells with peripheral palisading. There was no increase in mitotic activity. The overall appearance was consistent to an extraosseous ameloblastoma. Due to the differences between histology results, the sample was sent for further analysis and confirmation to Newcastle University, where it was confirmed to be a peripheral ameloblastoma. **Conclusion:** The case highlights the difficult histological appearance of a peripheral ameloblastoma and shows the need for thorough history and investigations to ensure the correct diagnosis and treatment is decided.

25	**PDL-1 TESTING AND IMMUNOTHERAPY SELECTION – EARLY LABORATORY EXPERIENCE AND ITS POTENTIAL ROLE IN HEAD & NECK CANCER MANAGEMENT** Bancu A[a], Cowan R[a], Chaturvedi A[b]. ([a]Department of Clinical Oncology, Christie Hospital NHS Trust, Manchester, UK. [b] Department of Histopathology, Christie Hospital NHS Trust, Manchester, UK) **Background & Objectives:** Anti-programmed cell death protein-1 (PDL-1) therapy has been relatively recently approved in a defined context by NICE in adults in the management of recurrent and metastatic head and neck squamous cell carcinomas (SqCCa). In this context, companion diagnostic PDL-1 testing, previously established at our centre for lung and bladder tumours, was undertaken as per NICE recommendations and clinical requests in a few head and neck cases. **Methods:** Histopathology reports incorporating PDL-1 test results were identified (5 year period - Jan 2014 to Jan 2020; including head and neck SqCCa) and analysed for tumour type, clone and test result. **Results:** PDL-1 testing was undertaken in 199 cases, including 3 with head and neck squamous carcinoma - with low focal positive staining in all 3 cases (viz., 1%, 1% and 15%). **Conclusions:** Immunotherapy treatment in head and neck squamous cell carcinomas has demonstrated in some studies a small but statistically significant improved overall survival. The strength of correlation between PDL1 expression and response to IO agents in HNSCC has however been established to lesser degree in recent studies as opposed to some other tumour types, such as in lung carcinoma. This study aims to record data as per NICE recommendations and share it with a view to highlighting the case for improved routine laboratory biomarkers in HNSCC.

26	**CYSTIC SQUAMOUS CELL CARCINOMAS OF THE JAWS: TWELVE CASES HIGHLIGHTING HISTOPATHOLOGICAL PITFALLS**

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Background & aim: cystic squamous cell carcinomas (SCC) of the jaws, including carcinoma cuniculatum (CCu), are rare, slow growing and relentlessly invasive. The aim of this study is to document 12 cases

Methods: review of patient hospital notes, histopathological reports and original histological sections.

Results: six patients were female, six male (mean age 74.0 years, range 50-94). Six tumours affected the mandible, six the maxillary alveolus with or without extension into the hard palate. Clinical presentation varied, ranging from relatively innocuous looking ulceration to a grossly ulcerated mass, with radiological evidence of bony destruction in all cases. One patient had multiple dysplastic lesions and was retrospectively diagnosed with proliferative verrucous leukoplakia. For two others the tumour was a second primary oral SCC. Histologically four of the twelve tumours were designated as CCu on the basis of deeply endophytic, anastomosing channels of cystic stratified squamous epithelium and keratin microabscesses. The other eight were also cystic, but more heterogeneous morphologically and whilst a diagnosis of CCu had been considered in five of the eight the final diagnosis was well differentiated SCC. All patients underwent primary resection with neck dissection and were staged as T4a N0 M0. None developed any notable post-operative complications, but four patients died between six and 57 months after surgery. In four patients diagnosis was delayed as a result of superficial biopsies and/or confusing histopathology.

Conclusions: cystic SCC of the jaws can be difficult to diagnose histologically. Clinico-radiological correlation and long-term follow-up are essential.

27	**RAMAN SPECTROSCOPY FOR INTRA-OPERATIVE ASSESSMENT OF BONE RESECTION MARGINS IN ORAL CAVITY SQUAMOUS CELL CARCINOMA.**

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Background: Oral cavity squamous cell carcinoma (OCSCC) is the most frequent head and neck cancer. Surgery is the mainstay treatment for OCSCC patients. In case of bone involvement, the affected bone needs to be resected. Cancer-free bone resection margins (BRM) are of crucial importance: patients with cancer-free BRM have a 2 times higher chance of survival. Currently, there is no standard method for intra-operative assessment of BRM. Bone margin-status is only known after tissue decalcification, which takes 1-2 weeks. After that time re-operations are highly undesirable, because the surgical defect has healed. Therefore, it is crucial to achieve tumour free resection surfaces, which requires the possibility of intra-operative assessment of BRM.

Objective: The aim of this study was to investigate the potential of Raman spectroscopy for detection of OCSCC in bone resection surfaces during mandibulectomy. Raman spectroscopy (RS) is a non-destructive objective optical technique that provides information about the molecular composition of tissues.

Methods: Raman mapping experiments were performed on fresh mandible resection specimens from patients treated with mandibulectomy for OCSCC. A tumour detection algorithm was created based on water concentration and the high-wavenumber range (2800 cm−1–3050 cm−1) of the Raman spectra.

Results: Results show that RS can detect OCSCC in bone resection surfaces with a high sensitivity (96%) and specificity (83%) (26 mapping experiments/ 22 patients).

Conclusion: These results form the basis for further development of a Raman spectroscopy tool as an objective method for intraoperative assessment of bone resection margins.

28	**SOFT TISSUE OSTEOCHONDROMA** Bello I.O.[1], Osaimi A.[2] ([1]Department of Oral Medicine and Diagnostic Sciences; [2]Department of Oral and Maxillofacial Surgery, College of Dentistry, King Saud University, Riyadh, Saudi Arabia) **Background:** Extraskeletal osteochondroma are rare soft tissue tumours occurring in extra-osseous and extrasynovial structures with features of enchondral ossification. Cases have been reported in the hands and feet but extremely rare in head and neck region. This is a report of a rare case in an extrasynovial location in the head and neck. **Case Report:** A 45 year old male patient presented with a hard tissue lesion in the chin area, duration more than 10 years. Bimanual palpation revealed a freely movable 3 x 2 mm feely movable cartilage-like lesion with no attachment to the mandible. A small protrusion through the skin of the chin area was observed. Imaging also revealed a hard tissue lesion lying within the soft tissue. Lesion was excised alongside the skin surrounding it. Histology revealed an encapsulated benign lesion arranged in layers of fibrous tissue covering, a cap of hyaline cartilage transitioning to trabecular bone with more maturity towards the skin. Features were consistent with a diagnosis of soft tissue osteochondroma. Patient is currently healthy about 14 months after lesion excision. **Discussion:** Extraskeletal osteochondromas are believed to be derived pluripotent cells of joint synovium, tenosynovium and connective tissue. CT scan helps in demonstrating its extraskeletal location while MRI helps delineate its borders. Clinicohistopathologically, it has to be differentiated from pseudomalignant osseous tumors, myositis ossificans, ossifying fibromyxoid tumors and sarcomas. Osteochondroma should be included in differential diagnosis of some head and neck soft tissue calcified masses. Diagnosis will be aided by adequate imaging and histopathological examination.

29	**ATYPICAL MULTIPLE MYELOMA PRESENTING IN THE ORAL CAVITY. A CASE REPORT.** Bonnici N[a], Borg Savona S[b], Gatt A[b], **Betts A**[c] ([a]Faculty of Dental Surgery, University of Malta. [b]Department of Haemato-Oncology, Sir Anthony Mamo Oncology Centre, Malta. [c]Histopathology Department, Mater Dei Hospital, Malta.) **Introduction:** Multiple myeloma (MM) is a malignant plasma cell neoplasm. Features include lytic bone lesions causing pain and/or pathological fractures, anaemia, hypercalcemia, renal insufficiency, infections and amyloidosis. Oral manifestations, mostly clinical swellings and infiltrative masses on imaging, occur in approximately 30% of cases but rarely as the presenting feature. Oral presentation may be the sole presenting feature or form part of a spectrum of signs and symptoms. **Case description:** A 65 year old gentleman was referred to hospital because of a non-resolving palatal swelling. A diagnosis of MM was made based on histopathology, immunoprofile, demonstration of a monoclonal band on serum electrophoresis and widespread bone and soft tissue lesions on imaging. There was no response to aggressive chemotherapy and radiotherapy and unfortunately the patient passed away two months after diagnosis. **Discussion:** This case is not typical of the usual findings in MM. The disease presented in the oral cavity; a rare occurrence. The patient was relatively asymptomatic, initially hypocalcaemic and he had an atypical immunoglobulin pattern. Immunohistochemistry was not clear cut and the disease burden was extensive, which led to an initial working diagnosis of disseminated carcinoma. Atypical disease presentation makes diagnosis challenging, potentially leading to misdiagnosis or delays in diagnosis. **Conclusion:** This case report highlights clinicians' duty of thoroughly examining the oral cavity for suspicious lesions that could indicate serious underlying disease. To increase chances of a favourable outcome, clinicians must be attentive to the oral manifestations of underlying disease, have a high index of suspicion and refer promptly.

30	**AVOIDING ARTIFACTS IN TISSUE SPECIMENS OF ORAL MUCOSA – IMPROVED BIOPSY METHOD**

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Background: Microscopic analysis is accepted as a gold standard to diagnose lesions of oral mucosa (OM). Any technical error may result in histopathologic misidentification of the lesion. The most frequent problems can be associated with different artificial changes.

Aim: To develop an optimal method of incisional biopsy of the OM for prevention of artificial changes caused by forceps and dimensional deformation of material in fixative solution.

Methods: Technique of biopsy. The needle of an insulin syringe with an anesthetic is injected under the healthy mucosa at a distance of 5 mm to the lesion, a depth of injection is 2-3 mm. Infiltrative anesthesia is performed. The needle moves under mucous membrane of the lesion for 5 mm, raising this area. Around the needle two semi-ovoid converging sections are made with a scalpel, biopsy is in the shape of an ellipse. The excised part of tissue retained on the needle is transferred to a strip of filter paper. Then specimen is wrapped, folded and bound with suture nodes to hold the biopsy in the straightened position. The material is immersed in a container with formalin. Standard postoperative instructions should be provided to the patient.

Results: 88,0% (44 biopsies) were strength, correctly oriented and informative for morphological investigation.

Conclusion: Presented modification in technology of an incisional biopsy provides strength specimen, correct orientation during the embedding, exclusion of the use of forceps during biopsy.

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31	**A UNIQUE MUSCLE; DISSECTING THE ROLE OF SIGNLING PATHWAYS IN DEVELOPMENTAL ANOMLAIES OF THE TONGUE**

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Background. Vertebrate tongue is a complex muscular organ involved in mastication, taste sensation and articulation. Tongue affected in many syndromes, diseases and malignancies. It has recently been shown that a cascade of singling interactions between different cell populations during embryogenesis orchestrate the development of the tongue. In humans, a number of congenital abnormalities affect gross morphology of the tongue which can occur in isolation or as part of a developmental syndrome such as aglossia, microglossia, macroglossia and bifid tongue.

Objectives We present an overview of the gross anatomy and embryology of mammalian tongue development, review clinical presentation of tongue anomalies and briefly look at their genetic aetiology. We focused on one of the anomalies in mouse models and utilised multiple genetic approaches to investigate local temporospatial requirements for sonic hedgehog (Shh) signalling during tongue development

Results: Mice lacking a *Shh cis* enhancer, *MFCS4*, with reduced Shh in dorsal tongue epithelium have perturbed lingual septum tendon formation and disrupted intrinsic muscle patterning, with these defects reproduced following global *Shh* deletion from E10.5 mouse embryos. Shh responsiveness was diminished in local cranial neural crest cell (CNCC) populations in both mutants. Shh targets these cells through primary cilium. CNCC-specific deletion of orofaciodigital syndrome 1, which encodes a ciliary protein, led to loss of normal myotube arrangement and microglossia.

Conclusion: We demonstrate the cause of microglossia in syndromes affecting Shh signalling and show that Shh signalling is required in the cranial neural crest cells for lingual tendon differentiation and intrinsic muscle patterning.

32	**ODONTOGENIC TUMOUR WITH AN UNCERTAIN DIAGNOSIS: A CASE REPORT** Bosov M, Somasundaran S. (Oral and Maxillofacial Surgery, Plymouth University Hospitals, UK) **Background:** The calcifying odontogenic cyst is an uncommon lesion with an incidence of 1 % of all odontogenic cysts and tumours. It is characterized microscopically by ameloblastoma-like odontogenic epithelial proliferation, presence of ghost cells, and dentinoid-like material. It was previously described by Gorlin *et al* in 1962 and due to its diverse histological picture, several terms have been used over time by different authors to describe this lesion. **Case report:** This is a case report on a variant of the calcifying odontogenic cyst. A 47-year-old male patient attended the oral and maxillofacial surgery department with an overgrowth of inflamed tissue and exophytic appearance on the gingivae in the lower right molar region. Initial imaging revealed an uniloculated and well-circumscribed osteolytic lesion in the edentulous area of the lower first molar. The histopathological examination of the incisional biopsy sample did not establish a definitive diagnosis. Differential diagnosis included calcifying odontogenic tumour and adenomatoid odontogenic tumour. The patient underwent complete resection of the tumour along with the adjacent molar under general anaesthesia. No postoperative complications were encountered. A lesion comprising keratin with ghost cells and calcification was sampled. It appears to be continuous with the surface epithelium and not present in the bone. The presence of ameloblastic cells at the periphery of the calcified foci led to the diagnosis of the controversial lesion known as Gorlin cyst and more recently as dentinogenic ghost cell tumour. One year after the resection, no clinical or radiological recurrence was observed. Yearly follow ups are planned.

33	**ORAL AND OROPHARYNGEAL SQUAMOUS CELL CARCINOMA ASSOCIATED WITH PRECURSOR LESIONS: A STUDY OF CANCER DATA IN ONTARIO, CANADA**

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Background: Oral and oropharyngeal squamous cell carcinoma (OSCC) is commonly preceded by pre-invasive lesions. These are collectively described as oral potentially malignant disorders (OPMD). We hypothesized that OSCC that are associated with a previously diagnosed OPMD have better clinical outcomes.

Objectives: To determine the clinical characteristics and outcomes of OSCC diagnosed in Ontario and compare cases with or without previous biopsy-proven OPMD.

Methods: We searched for OPMD diagnosed from 2001 to 2015 in the databases of 4 pathology services in Ontario: Oral Pathology Diagnostic Services at University of Toronto, Western University, Mt. Sinai Hospital and Sunnybrook Health Sciences Centre. The database was linked to the Cancer Care Ontario database (2005-2015) to identify OSCC cases with a preceding OPMD. Variables included: age at cancer diagnosis, sex, geographic location of the patient's residence, cancer site, stage and outcome.

Results: There were 11213 patients diagnosed with OSCC between 2005-2015 and 390 (3.48%) of these patients had a preceding diagnosis of OPMD. 17.12% of OSCC patients with precursor lesions died of disease, compared with 31.87% of those without precursor ($p<0.0001$). Stage I disease predominated in patients with precursor lesions (46.71%) while Stage IV disease was more frequent in patients without precursor lesions (56.73%). The proportion of cancer patients with previously diagnosed OPMD was influenced by the location of patients' residence ($p<0.0001$), suggesting that differences in access to care play an important role.

Conclusion: Clinical and histopathological diagnosis of OPMD is critical for early cancer detection and leads to improved clinical outcome.

34	**A DELPHI STUDY TO DETERMINE THE KEY QUALITIES CONSULTANT HISTOPATHOLOGISTS USE TO DETERMINE DIAGNOSTIC COMPETENCY IN TRAINEES** Brierley DJ[a], Farthing PM[a], Zijlstra-Shaw S[b]. ([a]Oral Pathology, [b]Oral Health, Dentistry and Society, School of Clinical Dentistry, University of Sheffield) **Background:** There has been no clear description of what constitutes "diagnostic competence" in histopathology. We have published qualitative interview data exploring this concept which was used to devise a framework describing how consultants identify diagnostic competence in trainees. **Objectives:** A Delphi study was conducted to triangulate and determine the relative importance of the key qualities of trainees derived from the qualitative interviews. **Methods:** Twelve participants were purposively chosen to form an expert panel of relevant stakeholders within the United Kingdom. Participants were asked to score and rank the items presented to them. **Results:** A total of 22 out of 27 of the key qualities of trainees reached "consensus in" suggesting participants were able to agree that the majority of the items identified in the qualitative interviews were important to diagnostic competence. Five qualities reached "no consensus", none reached "consensus out". Participants did not suggest any additional qualities. Participants particularly valued qualities of reflection, professionalism and trainees who understood the process of reaching a diagnosis and how their pathological report could impact patient care. This culminated in entrusting work to trainees. **Conclusions:** This study has triangulated findings from qualitative interviews and shows that consultants value a wide variety of qualities when determining trainees' diagnostic competence. The judgement is complex and should be assessed longitudinally. Consultants can then assess consistency of both approach to diagnosis and trainee behaviour. Curricula should focus on what trainees do in the workplace rather than demonstration of individual competencies.

35	**MUCOEPIDERMOID CARCINOMA MASKED BY ADJACENT BENIGN NEURAL LESION: A CASE REPORT** Brown SJ, Nixon I, Conn BI (Department of Pathology, Royal Infirmary of Edinburgh, UK) **Introduction:** Mucoepidermoid carcinomas demonstrate a heterogeneous clinical presentation, occasionally mimicking other lesions (such as mucocele in the oral cavity). We present an unusual case arising in the parotid gland, masked by a neuroma. **Clinical Presentation:** A 25 y/o female presented to neurology with left facial muscle twitching of 7 years duration, following chemotherapy for Hodgkin's Lymphoma. Clinical examination revealed muscle fasciculations under the left eye, nose and angle of mouth. Cranial nerve examination and vision tests were otherwise normal. MRI revealed a lesion affecting the extracranial portion of the left facial nerve (CNVII), with an adjacent parotid gland abnormality, determined as Schwannoma. She returned aged 28 with worsening facial weakness, a new MRI revealing extension of the lesion through the stylomastoid foramen. Following further deterioration of facial muscle function, the lesion was resected, with facial nerve graft. **Histopathology:** Sections revealed a well circumscribed nodule of neural tissue demonstrating direct intraneural infiltration by islands of a cystic epithelial tumour lined by bland cuboidal/columnar epithelium with occasional clear, mucous and intermediate cell types. ABPAS staining confirmed presence of mucin. The features were of a neuroma infiltrated by mucoepidermoid carcinoma. **Outcome:** Following MDT discussion, the patient will undergo temporal bone resection, radical parotidectomy and selective neck dissection. Further outcome will be presented. **Conclusion:** Mucoepidermoid carcinomas are the most common salivary malignancies. Our case report highlights that these tumours can show a wide variety of presentation depending on site and size. In this case an adjacent pathology, albeit benign, confused the clinical picture.

36	**INCIDENTAL EXTENSIVE THYROID MALIGNANCY IN A LARYNGECTOMY FOR SQUAMOUS CARCINOMA: A CASE REPORT.** Brown SJ, Parker CTA, Conn BI, MacNeill M (Department of Pathology, Royal Infirmary of Edinburgh, UK) **Introduction:** Laryngectomy specimens for extensive SCC often include thyroid for both access and staging. Occasionally, incidental pathology is discovered within this tissue or the associated neck structures. We present a case of unexpected extensive thyroid malignancy, concurrent with squamous carcinoma. **Clinical Presentation:** A 56 y/o man presented to ENT with a 4 month history of hoarseness and palpable neck masses. He had previously suffered from follicular non-Hodgkin's lymphoma, treated with bendamustine and rituximab. Following a past assault, he sustained brain damage and required tracheostomy. He was a previous smoker. CT scan revealed a supraglottic mass, subsequently confirmed as moderately differentiated SCC on microlaryngoscopic biopsy. **Histopathology:** A total laryngectomy with bilateral modified neck dissections was received. On sectioning, a bilateral tumour was present within the anterior supraglottis and glottis, destroying the anterior thyroid cartilage and involving the strap muscles. The included right thyroid lobectomy contained a number of pale nodules, which were sampled extensively. Histology confirmed the laryngeal tumour to be moderately differentiated SCC. The thyroid gland contained numerous foci of invasive papillary thyroid carcinoma which, at one point, collided with the SCC. The selective neck dissections contained numerous bilateral deposits of both squamous and papillary thyroid carcinoma with extracapsular extension. **Conclusion:** Laryngeal resection specimens include numerous adjacent anatomical structures, removed both for surgical and staging purposes. Our case report highlights that these adjacent structures can include additional incidental primary disease, making careful macroscopic dissection and description vital to ensure both correct staging and to avoid second pathologies being overlooked.

37	**GRANULOMAS IN WARTHIN TUMOURS OF THE PAROTID: REPORT OF TWO NOVEL CASES AND REVIEW OF THE LITERATURE.** Brown SJ, Conn BI, Wallace W, MacNeill M, Wood A (Department of Pathology, Royal Infirmary of Edinburgh, UK) **Introduction:** Warthin tumours often demonstrate striking and easily recognisable histological features. We present two cases containing prominent granulomatous inflammation and a review of the literature. **Case 1:** A 55 y/o male presented with painless mandibular swelling over 12 weeks. He was a smoker, otherwise fit and well. MRI and FNA were suggestive of Warthin tumour. Histological examination confirmed Warthin tumour, the lymphoid stroma demonstrating reactive hyperplasia along with well defined, partially confluent, non-necrotising granulomas. Special stains for microorganisms were negative, the background salivary gland showing mild fatty metaplasia. **Case 2:** A 73 y/o female presented with a rapidly expanding parotid mass over 4 weeks, with no history of trauma. She was cachetic and a smoker, but otherwise fit and well. FNA was suggestive of Warthin tumour, however MRI was suggestive of malignancy. Histological examination revealed Warthin tumour with multiple foci of ulceration to the bi-layered epithelium, the associated stroma containing prominent non-necrotising granulomatous inflammation with multinucleate giant cells. Again, special stains for microorganisms were negative. The background parotid showed acinar atrophy, mild intralobular fibrosis and fatty metaplasia. **Literature Review:** Granulomatous inflammation within the stroma and tissues surrounding Warthin tumours is uncommon, but well documented in the literature. Many cases are attributed to infection, including tuberculosis, toxoplasmosis and histoplasmosis. Another reported aetiology is rupture of the cystic spaces following FNA or infarction. More rarely, inflammatory systemic conditions such as sarcoidosis and Langerhans cell histiocytosis have been implicated. We will present the literature to date, including recommended histological investigations

38	**HISTOPATHOLOGIC IMMUNOHISTOCHEMICAL AND ULTRASTRUCTURAL COMPARISON OF A PATIENT WITH REGIONAL ODONTODYSPLASIA**

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Background: Regional Odontodysplasia is a rare dental abnormality that usually affects a quadrant of both primary and secondary dentition, most often affecting the maxilla. This condition affects the hard tissues of the tooth and the affected teeth are described as "ghost teeth".

Objectives: To compare histopathological characteristics, immunohistochemical expression and ultraestructural features of the teeth from a Chilean patient affected by regional odontodysplasia (RO).

Methods: In the present study we included a patient who signed informed consent and agree to donate exfoliated deciduous teeth. This study analyzed three teeth from this patient with RO and seven normal teeth. These samples were analyzed by ground sections technique in optical microscopy and polarized light microscopy, immunohistochemistry with anti amelogenin antibody and anti dentin sialophosphoprotein antibody (DSPP) and scanning electron microscopy (SEM).

Results: Affected RO teeth presented on histopathological analysis thin enamel with wavy surface, dentin presented less thickness and abundant interglobular dentin. Immunohistochemical expression shows remanent tooth enamel matrix marked positive for amelogenin, while the control teeth lost the enamel matrix post decalcification. SEM analysis shows dentinal tubules with wide variation of diameters and enamel with disordered prisms, while the control teeth presented ordered tubules and prisms.

Conclusions: The histopathological, immunohistochemical and SEM study showed alterations in both enamel and dentin of the teeth affected by RO.

39	**TOOTH FRACTURES DUE TO MAXILLOFACIAL TRAUMA**

Celbis O (Inonu University, Faculty of Medicine, Department of Forensic Medicine, Malatya, Turkey)

Background: Traumatic tooth fractures usually occur during fight, fall, traffic accident and sport activity. They often occur as a result of maxillofacial trauma. Mostly affected fields by traumas due to their locations are the upper central and lateral teeth.

Objectives: In this study, we aimed to describe risk factors of traumatic tooth fractures.

Methods: The patients who were applied to our forensic medicine center during 10 years were examined. The patients whose teeth were broken due to trauma were included in this study.

Results: There were 34 tooth fractures in 36858 forensic cases of 10 years examined due to trauma. 29 of the cases were male and 5 were female. The mean age was 36.9118 ± 13.09. It was seen that 29 were due to assault and battery, and 5 were due to a traffic accident. It was observed that only the upper jaw was broken in 22, only the lower jaw in 4, and both the upper and lower jaw in 8 cases. 25 of the cases had 1 or 2 tooth fractures and 29 of the cases had full fractures. Most of the fractures were accompanied by only soft tissue trauma. The most common bone fractures were metacarpal bone fractures.

Conclusions: In the cases, it is seen that tooth fractures generally occur due to direct traumas especially direct face traumas. Generally, fractures occurring in direct traumas are one or two tooth fractures due to local traumas.

40	**EXPRESSION OF MESENCHYMAL STEM CELL MARKERS IN THE STROMA OF ODONTOGENIC CYSTS AND TUMORS**

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Objective: To investigate the immunoexpression of stem cell markers (Nanog, SOX2, Oct4, CD34) in odontogenic cysts and tumors. CD34 was investigated as a marker for stromal fibroblast/fibrocyte cells (CD34+SFCs). CD34+SFCs were also investigated ultra-structurally. The physical aggregation of collagen fibers was examined by picrosirius red (PSR) stain and polarized light.

Methods: Ten cases each of primary odontogenic keratocysts (OKC), recurrent OKC, dentigerous cysts, ameloblastoma, unicystic ameloblastoma, odontogenic myxoma and 7 syndromic OKC (sOKC) were included. Results were expressed as the mean number of positive cells per field. Changes (%) in polarization colors of the collagen fibers were assessed pending on 90^{o} rotation of the microscope table. Significance was set at $p< 0.05$.

Results: All markers except Oct4 were expressed by stromal cells in all lesions. Expression of SOX2 but not Nanog was significantly higher in tumors than in cysts ($p<0.05$). CD34+SFCs were more frequent in cysts than in tumors. Ultrastructurally, CD34+SFCs were identified for the first time in odontogenic lesions and showed characteristic bi-polar/dendritic morphology. PSR-stained slides and polarized light showed a higher versatility of the collagen fibers in cysts than in tumors.

Conclusions: Stromal cells in odontogenic cysts and tumors seem to contribute to their biological behavior.

41	**TO EVALUATE AND COMPARE THE COPPER CONTENT IN ARECANUTS SPRAYED WITH AND WITHOUT COPPER CONTAINING FUNGICIDE BY ATOMIC ABSORPTION SPECTROSCOPY.** Chatra L (Oral Medicine and Radiology, Yenepoya Dental College, Yenepoya. Deemed to be University) **Background -** Oral sub mucous fibrosis of oral cavity is one of the main adverse effects of areca nut chewing. The copper content of areca nut is high and the possible role of copper as a mediator of fibrosis is supported by the demonstration of up regulation of lysyl oxidase in OSF biopsies. The aim of this presentation is to emphasize that, the incorporation of copper into the arecanut is through the Bordeaux mixture which is sprayed as a fungicide on areca plantations in regions with scheduled monsoons. The important constituent of Bordeaux mixtures copper sulphate. **Aims & objectives:** To analyze metal constituents of arecanuts sprayed with copper containing fungicide. To analyze metal constituents of arecanuts not sprayed with copper containing fungicide. To evaluate and compare the copper content in arecanuts sprayed with copper containing fungicide and without copper containing fungicide. **Methods:** Aqueous solution of exfoliated mature arecanuts sprayed with copper containing fungicide Bordeaux and that not sprayed with any fungicide were prepared by crushing the dry arecanuts and grinding it to a coarse powder, then metal analysis was done by Atomic Absorption Spectroscopy (AAS). **Results:** Metal analysis showed that the difference in copper content of arecanut treated with fungicide to that of those not treated with fungicide was very meager. **Conclusions:** Copper content of arecanut treated with fungicide and that not treated with fungicide was not very significant. Hence source of copper in arecanut may not be fungicide which is sprayed on to it.

42	**TREATMENT OF BURNING MOUTH SYNDROME WITH INTERGRATION OF TRADITIONAL CHINESE MEDICINE AND WESTERN MEDICINE - A PLOT STUDY**

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Background: There is no report of integration of Traditional Chinese Medicine (TCM) and Western Medicine (WM) in treating the burning mouth syndrome (BMS). BMS are more frequently affected the peri-menopausal women. Both BMS and perimenopausal patients are diagnosed and classified in similar "Zhen pattern", which imply similar traditional Chinese medicinal formula in treating these diseases.

Objectives: To understand the efficacy of TCM in treating BMS.

Methods: BMS patients were treated with 0.5 clonazepam every day before sleep or twice a day. They received TCM therapy if their pain were not decreased or not completely relieved by WM. The TCM medicinal formula were basically Jia-Wei-Xiao-Yao-San, Zhi-Bai-Di-Huang-Wan, Mai-Dong, Niu-Xi and others according to their "Zhen pattern". All patients received pain evaluation or/and global perceived effects of their symptoms after WM and TCM.

Results: There were 8 patients, 6 women and 2 men, included in this retrospective study. The mean age was 62-year-old. After the integration of TCM management, 62.5% (5/8) patients could more improved in burning/stinging pain sensation. The duration of improving burning sensation ranged from 2 to 28 weeks. 28.5% (2/7) patients could improve dry mouth, and it need 3 and 8 weeks after TCM taking. All patients (8/8) could improve their sleep problem and this needed 5 days to 8 weeks after patients took TCM.

Conclusions: Our study offers another choice for management of BMS. This is the first study to integration of WM and TCM in treating the BMS patients.

43	**LIPOMA IN THE ORAL CAVITY INTERFERING WITH DENTAL OCCLUSION – A CASE REPORT** Chiliou G, Mavros A, Nicolaou Z. (International College for Maxillo-Facial Surgery, Limassol. Cyprus) **Background:** Oral lipomas are benign tumors of mesenchymal origin, usually diagnosed in fourth or fifth decade of life. They commonly present as slow growing, asymptomatic lesions, soft in the palpation, often found on the buccal mucosa and less frequently in the tongue, floor of the mouth, lips, palate and gingiva. **Objectives:** The presentation of a case of an intraoral lipoma of uncommon size on the buccal mucosa, interfering with the dental occlusion of the patient and discussion of the differential diagnosis of soft tissue tumors. **Methods:** A 47-year-old woman, with unremarkable medical history, referred to a maxillofacial department for painless swelling on the left buccal mucosa for about one year, which interfered with her dental occlusion and speaking. The patient mentioned she moved the mass out of her mouth during mastication. The lesion was pedunculated, solid, about 4 cm in diameter, soft on palpation and presented an indentation due to the occlusal interference. **Results:** The differential diagnosis of intraoral lipoma consists of entities such as oral dermoid and epidermoid cysts, oral lymphoepithelial cyst, benign salivary gland tumors, benign mesenchymal neoplasms, ranula, ectopic thyroid tissue and lymphoma. Excisional biopsy was done under local anesthesia and the microscopic examination lead to the diagnosis of intraoral lipoma. There were no complications during and after the surgery and no sign of recurrence. **Conclusions:** Oral lipomas are usually asymptomatic lesions, unless they grow large and interfere with speaking and mastication. Surgical excision is the main treatment. Histological examination is important in determining the final diagnosis.

44	**A CURIOUS CASE OF THE GIRL WITH THE MISSING TEETH** Choudhury G, Safdar Y, Jones K. (Royal Derby Hospital. Derby. UK) **Case report:** A 3-year-old girl presented to the maxillofacial clinic with an asymptomatic large lump on the left side of the mandible with failure of teeth to erupt in the area. She presented with a firm, non-tender swelling of the lower left canine region exhibiting no signs of infection. Furthermore, her lower left deciduous canine was missing despite normal dental development elsewhere in the mouth. A CT scan of the mandible revealed an expansile, cystic lesion closely associated with an unerupted mandibular deciduous canine. Odontogenic tumours with analogous clinical and radiographical presentations as described include keratocysts, ameloblastomas and odontogenic myxomas. An incisional biopsy was performed to determine a definitive diagnosis where histology revealed a central odontogenic fibroma (COF). In particular, the nest of odontogenic epithelium in-between the fibroblastic stroma was pathognomonic for COF. Subsequently, she underwent complete enucleation of the mass, curettage of the residual bone alongside extraction of the enveloped deciduous tooth. **Clinical Relevance:** COFs are an extremely rare group of benign neoplasms accounting for <1.5% of all odontogenic tumours. Such distinctions between the differential diagnoses are vital as several of the aforementioned tumours have high recurrence rates whilst COF classically does not. Furthermore, the age of the patient here is remarkable as the literature describes the mean age of presentation as 31 years old. **Conclusion:** This atypical case of COF highlights the importance of accurate histological findings which is pertinent to its diagnosis. It also incorporates several specialties and emphasises the importance of early detection, diagnosis and treatment.

45	**CISPLATIN RESISTANCE IN HPV-POSITIVE AND HPV-NEGATIVE OROPHARYNGEAL SQUAMOUS CELL CARCINOMA.** Crane H[1], Foran B[2], Tahir F[3], Joyce H[2], El-Khamisy S[4] and Hunter K[1]. ([1]School of Clinical Dentistry, University of Sheffield, [2]Clinical Oncology, Sheffield Teaching Hospitals, [3]Department of Histopathology, Sheffield Teaching Hospitals, [4]Molecular Biology and Biotechnology, University of Sheffield). **Background:** Oropharyngeal Squamous Cell Carcinoma (OPSCC) has two clinical subtypes: Human Papillomavirus (HPV) positive (HPV+) and HPV negative (HPV-). Clinical outcomes in HPV- OPSCC are poor, with a 3-year survival of 57.1%. Although HPV+ has an improved response to therapy (3-year survival of 82.4%), a subset of patients suffered from loco-regional recurrences and distant metastases, with a poor prognosis. Therefore, there is a need to understand the molecular basis underlying treatment resistance in both HPV+ and HPV- OPSCC. **Objectives:** To generate cisplatin resistant HPV+ and HPV- OPSCC models in vitro, to explore the underlying molecular basis of resistance. **Methods:** A HPV+ and HPV- cell line were exposed to long term cisplatin treatment to generate resistant models. Immunofluorescence and MTS assays were used to assess DNA double strand breaks and cell viability respectively. RNA-sequencing was used to assess differential gene expression between parental and resistant cells. **Results:** The HPV+ and HPV- resistant cells had a significantly higher half maximal inhibitory concentration (IC50) compared to the parental cells (HPV- resistant cells IC50: 47.5 compared to 10.3 and HPV+ resistant cells IC50: 84.9 compared to 40.0) and showed fewer DNA double strand breaks following cisplatin treatment. Treatment with Olaparib partially resensitised both HPV+ and HPV- resistant cells to cisplatin. RNA-Sequencing showed significant differential gene expression between the parental and resistant cells. **Conclusions:** This study demonstrates novel findings regarding the molecular basis of cisplatin resistance in OPSCC. The findings have implications for future research in this area.

46	**THE PREVALENCE OF HPV POSITIVE OROPHARYNGEAL SQUAMOUS CELL CARCINOMA AT A MAJOR REFERRAL CENTER IN SOUTHERN AFRICA**

Dapaah G[a], Hille J[a], Whittaker J[b], Dittrich CM[b], Ebrahim AK[c], Merven M[c], Naidoo K[d], Loock J[c], Afrogheh A[a] ([a]Oral Pathology, Faculty of Dentistry, University of the Western Cape. [b] Lancet Laboratories, Cape Town. [c] Ear, Nose and Throat, Faculty of Health Sciences, University of Stellenbosch. [d] Radiation Oncology, Faculty of Health Sciences, University of Stellenbosch.)

Limited data on the prevalence of HPV-positive oropharyngeal squamous cell carcinoma (OPSCC) in Southern Africa exist. The aim of the current study was to determine the prevalence of HPV-positive OPSCC at a major referral public hospital (Tygerberg Hospital) in Western Cape region, South Africa.

Methods: Sequential surgical samples of 266 cases of OPSCC diagnosed over a 10-year period (2007-2017) were selected for evaluation and relevant patient characteristics documented. p16 immunohistochemistry (IHC) was performed as a screening test. All p16 positive cases were further evaluated for HR-HPV using a novel DNA PCR technology (BD Onclarity HPV assay).

Results: Of 266 cases, 14% (n=36) were positive for p16. Of 36 p16-positive cases, 23 were negative and 13 (13/266=5%) were positive for HR-HPV when evaluated by PCR. p16 was found to have a positive predictive value (ppv) of 36.1%. HPV subtypes were HPV-16 (n=10), HPV-18 (n=1), HPV-52 (n=1) and HPV-31 (n=1). One case was positive for HPV-16 and HPV-31. HPV-positive OPSCC occurred in 10 men and 3 women with a mean age of 51 years (range: 33 to 72 years). Most HPV-positive OPSCC were non-keratinizing (n=10) or partially keratinizing (n=1). In contrast, HPV-negative OPSCC were predominantly keratinizing (n=218).

Conclusion: The presence of HR-HPV in 5% of cases, suggests HR-HPV as a minor etiologic agent in OPSCC at this institution. Due to its suboptimal ppv (36.1%), p16 IHC alone is insufficient to confirm an HPV-positive OPSCC at this center and when positive, HPV-specific testing must be performed by one of the available platforms.

47	**THE SURGICAL MANAGEMENT OF PAROTID PLEOMORPHIC ADENOMAS: A SYSTEMATIC REVIEW** Dave M[1], Bhakta P[2], Petersen H[1]. ([1]University of Manchester, United Kingdom. [2]Medical College of Wisconsin, United States of America.) **Background:** Pleomorphic adenoma is the most common benign neoplasm of the parotid gland. Treatment is through surgical excision, by which there are two main techniques; superficial parotidectomy (SP) involves removal of the tumour and the entire superficial lobe. Extracapsular dissection (ECD) involves removal of the tumour with a margin of normal parotid parenchyma. Variations in patient outcomes including risk of recurrence have been reported between both techniques. **Objectives:** The aim of this systematic review was to determine which surgical technique is more successful in the management of parotid pleomorphic adenomas. **Methods:** A preliminary literature search identified variations in nomenclature that were used to inform the search strategy. Medline, Embase and PubMed databases and reference lists of selected papers were searched with no language restrictions. Only studies with primary data reporting ECD and/or SP for the treatment of pleomorphic adenoma in the superficial lobe of the parotid gland were included for qualitative synthesis. **Results:** Seventy-two studies were identified of which 12 cohort studies were eligible for analysis. The Newcastle-Ottawa Scale was used to assess risk of bias. SP was associated with increased complications including transient and permanent facial nerve palsy, Frey's syndrome, fistula and sialoceles. However, higher frequencies of recurrence were reported with ECD. There was considerable heterogeneity between studies including the duration of follow-up, which may have impacted on incidence reporting of recurrent disease. **Conclusion:** There are key differences in reported outcomes of surgical success for ECD and SP. A long-term follow up study is required to determine definitive conclusions.

48	**CASE REPORT: MONOPHASIC SYNOVIAL SARCOMA OF THE MANDIBLE**

Donohoe E[a], Barry T[a], Martin D[b], Tietz B[b] (Department of Oral and Maxillofacial Surgery, University Hospital Galway, Galway, Ireland, Department of Histopathology, University Hospital)

Objectives: Synovial sarcomas (SS) are high-grade soft tissue sarcomas that are associated with poor survival. SS originates from pluripotent mesenchymal cells and not synovial structures. SS account for 8% of adult soft tissue sarcomas and in the head and neck region are considered rare. We present a case of a monophasic synovial sarcoma of the left body of the mandible and outline how diagnoses can come with challenges.

Material and Methods: A 59-year-old male presented with a slow growing mass of the left body of the mandible. Facial bones CT was completed and an expansile osteolytic mass involving the left body of mandible body was reported. An MRI scan was then carried out and the results mirrored that of the CT scan. A PET scan was completed ruling out metastatic disease. The patient was managed with pre-operative neo-adjunct chemotherapy. This was followed by resective surgery with 3D reconstruction and post-operative radiotherapy.

Results: SS is a mesenchymal malignancy which shows epithelial differentiation. Variants include monophasic, biphasic and a poorly differentiated (round cell) forms. This case of a monophasic variant was histologically characterised by interdigitating fascicles composed of monocellular monomorphic spindle cells with hyperchromatic nuclei. Occasional mitotic figures were present. It was diffusely strongly positive for TLE1, highly specific for SS. Molecular genetic analysis showed a t(x;18) (SYT-SSX1, SYT-SSX2, SYT-SSX4) fusion transcript present, confirming SS.

Conclusions: The differential diagnosis for a monophasic synovial sarcoma can be challenging. It includes malignant peripheral nerve sheath tumour (MPNST), solitary fibrous tumour (SFT), clear cell sarcoma, spindle cell rhabdomyosaroma and fibrosarcoma.

49	**BLOCKING PD-1/PD-L1 AXIS IS REQUIRED FOR PROLONGED RESPONSE TO TRAMETINIB IN TONGUE AND LIP CANCER MODELS IN MICE**

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Background: Acquisition of resistance to anti-cancer therapies is associated with increased expression of immuno- suppressor modulators that enable tumor cells to escape from the anti-tumor immunity machinery.

Objective: To understand the mechanisms of immune-escape from MEK inhibitors in head and neck cancer (HNC).

Methods: We have developed several MAPK pathway-driven cancers in immunocompetent mice. Specifically, 4NQO (Tobacco surrogate) -carcinogenesis induced HNC model, novel $KRAS_{G12}$-driven HNC model using CRISPR technology, and $HRAS_{V12}$ model using lentiviral vector. These models were used to study mechanisms of immune-escape from Trametinib, MAPK pathway inhibitor.

Results: All of these HNC models are sensitive to Trametinib in vitro and in vivo, however, over time, resistance was developed, and tumor progression was detected. In this work, we found that chronic treatment with Trametinib induced epithelial-mesenchymal transition (EMT), and upregulation of the tumor-derived immuno-suppressor modulators like PD-L1. The tumor ecosystem was also altered during the acquisition of resistance, as upon short treatment with Tramatininb during the stable disease, tumors were enriched with infiltrated CD8+ T, while upon progression the CD8+ T cells in the tumors showed an exhausted phenotype with high levels of PD-1. Blocking the immune-escape mechanisms using anti PD-1/PD-L1 drugs together with Trametinib induced tumor eradication and most mice were cured.

Conclusions: Our findings suggest that administration of blockers of the PD1/PD-L1 axis enhance the anti-tumor activity of MAPK-targeted drugs and delay the appearance of resistance.

50	**SYNCHRONOUS OCCURRENCE OF ACINIC CELL CARCINOMA OF SOFT PALATE AND SQUAMOUS CELL CARCINOMA OF LUNG: A CASE REPORT** Fairuz AR[1], Noor Mayah J[1], Khairunnisa M Z[2], Salina D[1,3] ([1]Department of Oral Pathology and Oral Medicine and [2]Department of Pathology, Hospital Queen Elizabeth, Kota Kinabalu, Sabah. [3]Stomatology Unit, Institute for Medical Research (IMR), Kuala Lumpur) Acinic cell carcinoma (AcCC) is a low-grade malignant salivary neoplasm and only constitute approximately 6% to 8% of all salivary gland neoplasms. Although its low grade histology, AcCC has a significant tendency to metastasis. We report the first case of AcCC in our facility of a 74 years old man who presented with a slow growing mass on the left soft palate. A diagnosis of AcCC is made based on the characteristic histologic features of an infiltrative tumour of large polygonal cells with dark, round, eccentric nuclei and having PAS-D positive basophilic granules along with immunohistochemical (IHC) findings of positive for CK7. Presence of intravascular invasion is evident. Concurrently, CECT thorax show a suspicious nodule at the right upper lobe of lung. Initially we suspected lung metastatic tumour based on the fact that AcCC has significant tendency to metastasis to lung and cervical lymph node. A wedge biopsy from lung was done and revealed Squamous Cell Carcinoma (SCC). IHC studies on this tumour also show different findings with immunopositivity with P63 and negative for CK7. A probability of tumour metastasis to lung has been ruled out with the finding of a new primary tumour of lung. AcCC can be misinterpreted due to its benign appearance, absence of malignant features and histologically similar to the normal acinar cells. Pathologists should be aware and very vigilant while reporting this entity. AcCC of soft palate in this case is relatively rare and synchronous occurrence of other primary tumour make it extremely unusual.

51	**CHARACTERIZATION OF CCL5/CCR5 AXIS AND ASSOCIATED CHEMOKINE RECEPTORS IN ORAL SQUAMOUS CELL CARCINOMA CELL LINES** González-Arriagada WA[a], Isaac García[a], Ricardo Della Coletta[b] ([a]Dental Faculty, Universidad de Valparaíso, [b]Oral Pathology, Piracicaba Dental School, State University of Campinas) **Background**: The communication between cancer cells and lymphatic fibroblasts is important for the implantation of lymph node metastasis and chemokines play a fundamental role. CCR5 is one of the main chemokine receptors associated to regional lymph node metastasis, however the mechanisms of CCL5/CCR5 axis in oral squamous cell carcinoma (OSCC) are poorly understood. **Objectives:** We studied the expression of CCL5 and CCR5, and ligands (CCL3) and receptors (CCR1, CCR3 and CCR4) that have been involved with the CCL5/CCR5 axis. **Methods:** Cell lines from primary tongue cancer (SCC9, SCC15, SCC25, Cal27), one cell line from lymph node metastasis (HSC3) and one primary cell line from normal oral keratinocytes were studied. The expression of ligands was measured by ELISA and qPCR, and the expression of receptors was measured by WB and qPCR. Thirty-six primary tumors and fifteen lymph nodes metastasis were analyzed immunohistochemistry for the chemokine receptors. **Results:** The expression of CCL5 was significantly higher than CCL3. SSC25 was the cell line with the higher expression of CCL5, significantly different to normal oral keratinocyte. CCR4 and CCR5 was expressed by all cell lines with a higher expression in SCC9 and Cal27 in comparison with the control. The expression of CCR1 and CCR3 was significantly lower. These results were correlated with the immunohistochemical expression in paraffin-embedded samples. **Conclusions**: These findings suggest that CCL5, CCR5 and CCR4 are the molecules, involved in the CCL5/CCR5 axis, with higher expression in OSCC. More studies are needed to understand the mechanisms involved in CCL5/CCR5 axis in OSCC.

52	**SPECTRUM OF ORAL PREMALIGNANT AND MALIGNANT LESIONS IN FANCONI ANEMIA PATIENTS: DIAGNOSTIC AND MANAGEMENT CHALLENGES.**

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Background: Fanconi anemia (FA) is characterized by congenital anomalies, progressive bone marrow failure, and increased cancer risk. FA patients have a >300-fold increased risk of developing head and neck cancers, including oral squamous cell carcinoma (OSCC).

Objectives: To describe the spectrum of premalignant/malignant oral lesions illustrating diagnostic and management challenges in FA patients**.**

Methods: Five FA patients seen regularly were selected. Oral lesions and management strategies were systematically documented over time.

Results: All five FA patients (4 males; 1 female), (median age 21) developed oral lesions without evidence of HPV or typical risk factors for OSCC. All patients had received previous hematopoietic cell transplantation. Three patients developed OSCC of the lateral tongue (n=2) and gingiva (n=1), preceded by rapidly progressing premalignant epithelial dysplasia. All three had previous history of graft-versus-host disease, a known risk factor in FA patients. OSCC patients developed recurrent/new dysplastic lesions within four years following management of OSCC. The two patients with no OSCC showed premalignant epithelial dysplasia and verrucous hyperkeratosis of the tongue and palatal gingiva, respectively. One patient with OSCC also developed pharyngeal wall SCC and two separate basal cell carcinomas of the upper lip. Our current management strategies include frequent evaluation (monthly to every 3-6 months) with low tolerance and recommendation for biopsy of suspicious lesions.

Conclusions: FA patients develop premalignant lesions and OSCC at a younger age and higher rate than non-FA patients and require screening examinations for such lesions at least every six months. Lower biopsy thresholds and histological evaluation are recommended.

53	**GLANDULAR ODONTOGENIC CYST OR LOW GRADE MUCOEPIDERMOID CARCINOMA? A CASE CHARACTERIZED WITH OVERLAPPING HISTOMORPHOLOGICAL FINDINGS** Gormez M, Koseoglu RD, Arici A, Cetin E (Tokat Gaziosmanpasa University Faculty of Medicine, Department of Pathology, Turkey) **Background:** Glandular odontogenic cyst (GOC) is a rare odontogenic epithelial cyst of the jaw, with glandular differentiation. It occurs in adults and mostly in the anterior mandible. **Case:** 38-year-old female patient underwent curettage due to a well-circumscribed 15x10 mm cystic lesion, associated with the molar tooth root, in the mandible. Histopathological examination revealed a neoplastic cystic lesion containing distorted small glands that seemed smaller in size, around the cyst lined by mucinous columnar epithelium. In rare areas, immature metaplastic squamous epithelial islands in related to the wall of the cyst was striking. There was often goblet cells within the cyst lining. No significant nuclear atypia was detected in the epithelium. Very rarely, typical mitoses were observed. Free mucin ponds were commonly observed in the cyst lumen, stroma. PanCK stain highlighted much smaller glands in size in areas around the cyst, as well as small clusters of epithelial cells in abortive, distorted character and even without gland structure. No significant staining was detected with P53 and Ki67. The case was considered to be compatible with GOC due to lack of nuclear atypia, low mitotic and Ki67 index, no evidence of destructive invasion. However, because of low grade mucoepidermoid carcinoma (LGMEC) could not be excluded, follow-up was recommended. **Conclusion:** GOC has histomorphological findings overlapping with LGMEC. The absence of nuclear atypia, mitotic activity and invasion findings is important in the diagnosis of GOC, but LGMECs that have weak criteria for malignancy may cause serious problems in differentiation from GOCs in some cases.

54	**PAGETOID SQUAMOUS CELL CARCINOMA IN SITU/PAGETOID BOWEN'S DISEASE: A RARE CASE** Gormez M, Cetin E, Arici A, Koseoglu RD (Tokat Gaziosmanpasa University Faculty of Medicine, Department of Pathology, Turkey) **Background:** Pagetoid squamous cell carcinoma in situ/Pagetoid Bowen's disease (PSCCIS / PBD) , a rare histological variant of squamous cell carcinoma in situ / Bowen's disease, is a tumor characterized by large pale morphology of atypical cells which is morphologically similar to the cells seen in Paget's disease (PD). **Case:** 66-year-old male patient underwent punch biopsy due to 1.1x0.3 cm in size ulcerovegetative lesion on his left auricle. The case that was consulted to us was evaluated as compatible with PSCCIS / PBD. Total excision of the lesion was recommended. In microscopic examination of the total excision material, infiltration consisting of cells with large pleomorphic nuclei, prominent nucleoli and clear cytoplasm that formed nest pattern in some areas in the epidermis was remarkable. In the dermis, smooth limited epithelial invaginations with preserved basal membranes containing neoplastic cells and lesion involvement in the hair follicles were observed. There was no invasion. Mitosis were present in the lesion. Immunohistochemical analysis revealed diffuse nuclear staining with P40 and membranous staining with EMA and CK7 in tumor cells. CK5 / 6 showed positive staining in the basal layer in circumferance of the lesion. HMB45 showed positive staining in dendritic melanocytes within the lesion. Based on histomorphological and immunohistochemical findings, the case was evaluated as compatible with PSCCIS / PBD. **Conclusion:** It is important to distinguish PSCCIS / PBD from extramammarian PD and malignant melanoma in situ. Histopathologically and clinically, these lesions can be difficult to differentiate. Immunohistochemical study may be helpful in differential diagnosis.

55	**A RARE VARIANT OF SQUAMOUS CELL CARCINOMA: SARCOMATOID CARCINOMA**

Gormez M, Cetin E, Arici A, Koseoglu RD (Tokat Gaziosmanpasa University Faculty of Medicine, Department of Pathology, Turkey)

Background: Sarcomatoid carcinoma (SC) is a rare variant of squamous cell carcinoma (SCC). It is a malignant tumor containing SCC (in situ or invasive) component and predominantly sarcomatous component with malignant spindle and / or pleomorphic cells. It accounts for less than 1% of all laryngeal tumors.

Case report: 8x5 mm in size polypoid lesion on the right vocal cord of 72-year-old man with a history of smoking who presented with hoarseness was excised. In microscopic examination of the excision material, a tumoral lesion consisting highly pleomorphic cells with large nuclei and prominent nucleoli that had spindle cell morphology in some places, epitheloid cell morphology in some areas and occasionally giant cell morphology was observed. The tumor had surface in ulcerous appearance in most areas. There were typical and atypical mitoses in the tumor. Although there was squamous epithelium in intact benign appearance in an area on the tumor surface, the presence of squamous epithelium containing atypical cells with disrupted organisation standing apart from the tumor was remarkable. Immunohistochemical analysis revealed positive staining with SMA, Vimentin in the tumor cells. Multifocal positive staining with Pan-CK, EMA, P40 was observed in the squamous epithelium and lesion. CD34, desmin were negative. The case was reported to be compatible with SC.

Conclusion: SC is a rare variant of SCC. In the differential diagnosis, many tumors in spindle cell-like appearance such as nodular fasciitis, spindle cell melanoma, leiomyosarcoma, rhabdomyosarcoma, fibrosarcoma, synovial sarcoma, malignant peripheral nerve sheath tumors should be kept in mind and examined carefully.

56	**FOLLICULAR VARIANT OF PAPILLARY THYROID CARCINOMA AND MEDULLARY THYROID MICROCARCINOMA OCCURİNG SIMULTANEOUSLY IN THE THYROID: A RARE CASE**

Gormez M, Arici A, Cetin E, Koseoglu RD (Tokat Gaziosmanpasa University Faculty of Medicine, Department of Pathology, Turkey)

Background: Follicular variant of papillary thyroid carcinoma (FV-PTC) is a variant that develops from follicular cells, showing the nuclear properties of papillary thyroid carcinoma. Medullary thyroid carcinoma (MTC) is a malignant neuroendocrine tumor that develops from parafollicular C cells. It is more common in the 5th-6th decades and in women. MTC smaller than 10 mm is referred to as medullary thyroid microcarcinoma (microMTC).

Case: 59-year-old female patient with follow-up due to multinodular goiter (MNG) underwent total thyroidectomy. Macroscopically, 3.6x2 cm encapsulated solid nodular lesion in the right lobe and smaller nodular lesions in all thyroid material were observed. Microscopically, a tumor with capsular invasion had follicular pattern of cells containing nuclear enlargement, nuclear crowding, nuclear overlapping, nuclear clearing, nuclear groove on the background of MNG in the right lobe. In a separate focus at a distance of 1 mm from the tumor, 5 mm infiltrative lesion of cell groups with eosinophilic stoplasma containing polygonal, oval and elonge hyperchromatic nucleus with nucleoli in a stromal amyloid material was observed. Immunohistochemically, there were focal positive CK19 and luminal positive HBME-1 staining in the first lesion. Galectin-3 was negative. In the second lesion, positive calcitonin and CEA staining were striking. The first lesion as FV-PTC and the second lesion as microMTC were reported.

Conclusion: It is very rare to see synchronized occurrence of FV-PTC and microMTC originating from different cells as two different primers in the same thyroid lobe. Whether the occurrence is by coincidental or by common mutation remains a mystery today.

57	**GORHAM-STOUT DISEASE IN THE MANDIBLE: A CASE REPORT.** Grandhi A, Caldwell J, Kinal L (Loma Linda University School of Dentistry, USA). **Introduction**: Gorham-Stout disease is a rare disease that was first described by Jackson in 1838. The first case in jaws was reported in 1924. There is no clear consensus on the etiopathogenesis of the disease. A few proposed theories include bone destruction secondary to hyperemia from hemangiomatosis, increased osteoclastic activity mediated by interleukin-6 and lymphangiogenesis mediated by vascular endothelial growth factor, platelet-derived growth factor and interleukin-6. The disease presents as an osteolytic lesion without cortical expansion. Here, we present a case of Gorham-Stout disease exhibiting hemorrhagic gingival overgrowth in the mandible. **Case report:** A 46-year-old female patient presented with a chief complaint of blisters and bubbles in her lower gums. Clinical examination revealed multiple loose teeth in anterior and left mandible with hemorrhagic and hyperplastic gingival tissue. Upon radiographic evaluation, significant bone loss was recognized in the area giving the appearance of "teeth floating in air". The differential diagnosis included Gorham-Stout disease, osteomyelitis, Langerhans cell histiocytosis, and other conditions with osteolytic changes. Histological examination of the biopsy specimen revealed atypical vascular proliferation with mixed acute and chronic inflammation favoring exuberant granulation tissue. Her lab work-up confirmed elevated levels of serum IL-6 and VEGF. A diagnosis of Gorham-Stout disease was made based on these findings. Patient presented with a pathologic fracture of her left mandible three months after her initial consultation. She was referred to rheumatology and treatment with bisphosphonates was initiated. However, the patient failed to return for further treatment with the physician and was lost to follow-up.

58	**TO BE OR NOT TO BE: H. PYLORI AND ORAL CANCER**

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Background: Etiopathogenesis of oral cancer has been suggested to be infectious in 20th century wherein viral and fungal infections have been proved as carcinogenic. Bacterial role however has been still found controvertial in oral squamous cell carcinoma. Interest in the possible relationships between bacteria and the different stages of cancer development has been increased since the classification by the World Health Organization of Helicobacter pylori as a definite (class 1) carcinogen.

Objectives: To provide a comprehensive data on potential association between H. pylori and OSCC/OPMDs the present systematic review and meta-analysis have been planned form the current evidences quoted in different studies.

Methods: Different databases including PubMed, Cochrane Library, and SCOPUS were searched for and the statistical data was extracted.

Results: 15 out of 131 screened articles, fulfilled the eligibility criteria wherein, 9 and 6 studies discussed the association of H. pylori with oral squamous cell carcinoma oral potentially malignant disorders respectively. Meta-analysis was performed and forrest plot was drawn using odds ratio and confidence intervals.

Conclusion: Differences in the specificity and sensitivity of the diagnostic tools used to identify H. pylori in different studies contrasting results have been noted. Meta-analysis reported association between H. pylori and OSCC which is non–significant and the association of the microorganism with OPMDs could not be confirmed due to lack of sufficient number of studies.

59	**EFFECTS OF LOW LEVEL LASER IRRADIATION ON THE GROWTH OF THE RAT MANDIBULAR CONDYLE IN ORGAN CULTURE**

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OBJECTIVES: The present study was carried out to investigate histologically, immunohistochemically and histometrically the effect of the low level laser irradiation by diode laser on the growth of the rat mandibular condyle in organ culture.

METHODS: The mandibular condyles were removed from rats' embryos on the 21st day, and then cultured for 8 days. The 20 cultured condyles were divided into four groups: F-L- group (serumless BGJb); F+L- group (serumless BGJb with bFGF 100 ng/ml); F-L+ group (serumless BGJb and laser irradiation); F+L+ group (serumless BGJb with bFGF 100 ng/ml and laser irradiation). The laser irradiation (output 1.3 W/cm2 and wavelength 633 nm) was performed to cultured condyle for 30 seconds every 24 hours for 5 days. Immunohistochemically, PCNA was used for analysing of cell proliferation.

RESULTS: The mesenchymal cells in the layer of differentiation and hypertrophy in F+L+ group showed a marked increase in cell number and the size of the condyle. The positive cell number of PCNA in F+L- and F+L+ group were significantly higher compared with control group.

CONCLUSION: Our data showed that the low level laser irradiation promotes cell proliferation in cultured condyle same as bFGF addition. It is suggested that the low level laser irradiation by diode laser (wavelength 633 nm) had stimulated the proliferation of mesenchymal cell which had resulted in an increase of the number of chondrocytes in the layers of differentiation and hypertrophy there by leading to the enlargement of the condylar size.

60	**PROLIFERATIVE VERRUCOUS LEUKOPLAKIA – AN OBSTINATE PATHOLOGY**

Hazarey V. (Datta Meghe Institute of Medical Sciences, Wardha. India)

Objectives: PVL is a unique form of oral leukoplakia that has a high risk of becoming dysplastic and transforming into oral squamous cell carcinoma. The purpose of this study is to review and analyse institutional data of PVL.

Material & methods: This was a hospital based study, performed in the department of oral pathology & microbiology, Govt dental college & hospital, Nagpur. Total number of PVL cases from January 2003 to April 2016 was calculated based on clinicopathological correlation. They were further analysed based on their demographic data, habit pattern, clinical presentation, histopathological diagnosis and malignant transformation.

Results: 12 cases were diagnosed as PVL on the basis of clinicopathological correlation. Among these patients, 3 (25%) were females and 9 (75%) were males. The average age for these patients was 48.5 yrs. 10 (83%) patients had habit of chewing tobacco in various forms & 2(17%) patients were not associated with such deleterious habit. Among them, PVL lesions in 4(33%) patients out of 12 were transformed into malignancy.

Conclusion: PVL is rare, highly aggressive form of oral leukoplakia which requires special attention on the part of clinician. So, earliest possible diagnosis and treatment is recommended. Proper follow up of these patients for a long time should be done even after surgical management as PVL has higher recurrence rate and due to its malignant transformation potential

61	**DIFFERENCES IN STROMAL FEATURES AND CYTOKINE PRODUCTION IN HPV+ AND HPV- OPSCCS ARE ASSOCIATED WITH CLINICAL OUTCOME**

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Background: Tumour cells communicate with many other cells in their microenvironment, aiding progression and spread of the tumours. Cytokines play an important role in the tumour-microenvironment communication, enhancing cancer cell invasion and metastasis. In the oropharynx, HPV (+) and HPV (-) carcinomas have a very different clinical course and prognosis.

Objectives: To investigate if differences in cytokines involved in tumour cell-fibroblast communication could explain the differences in OPSCC subtypes. Secondly, to assess the influence of such stromal and cytokine biomarkers on patient survival in OPSCC TMAs.

Results: A cytokine multiplex array system was utilized to measure the production of 87 cytokines by normal tonsillar fibroblasts (NTFs) and cancer-associated fibroblasts (CAFs) after stimulation with HPV (+) or HPV (-) OPSCC media for 24hr. A subset of the cytokine profile including IL-6, IL-8, CCL2, OPN and KLK6 was significantly upregulated in the fibroblasts during or after HPV (-) media incubation compared to HPV (+) media. Interactive co-culture of HPV (+) or HPV (-) cancer cells with NTFs or CAFs validate these results: CCL2, IL6 and OPN ELISA levels were significantly higher in the HPV (-) co-cultures than HPV (+) co-cultures. To identify the source of OPN in the co-culture system, we have shown OPN upregulation is primarily in OPSCC cells, not fibroblasts. In the OPSCC TMAs, high-SMA expression in HPV (+) OPSCC correlated with overall survival ($p<0.01$).

Conclusion: We have demonstrated reciprocal crosstalk between OPSCC and fibroblasts involving a subset of cytokines, with stroma effects on clinical outcome.

62	**CLINICO-PATHOLOGICAL FEATURES OF HUMAN PAPILLOMAVIRUS ASSOCIATED ORAL EPITHELIAL DYSPLASIA**

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Background: There has been growing acceptance by the oral pathology community that high-risk human papillomavirus (HR-HPV) is associated with a subset of oral epithelial dysplasias (OED) but there is lack of consensus for the diagnostic criteria for HPV OED. This study describes the clinico-pathological features of this disease with the intention of adding to the current pool of knowledge in order to clarify diagnostic criteria and elucidate its clinical significance.

Method: Automated p16 and viral capsid immunohistochemistry, as well as HR-HPV DNA and RNA in-situ hybridisation (ISH) were undertaken in 71 archival samples from 40 patients diagnosed with HPV OED and 11 samples demonstrating similar histomorphological features. Ploidy analysis was undertaken on a subset of samples.

Results: The male to female ratio was 3.4:1. Five patients presented with adjacent associated invasive carcinoma, and in 4 patients there was subsequent malignant transformation. Histological features of viral infection did not consistently co-localise with p16, DNA or RNA ISH and were also present at varying degrees in the cases deemed HPV-negative. Capsid protein was present in 11 cases. Seven cases were DNA 'negative' but assessed RNA positive. Of the cases subject to ploidy analysis, 9 were diploid and 6 aneuploid. Two cases were reclassified as papillomas.

C**onclusion:** Standardised diagnostic criteria are required for differentiating HPV OED from histological mimics. Further research is necessary to determine the histological and ancillary factors that may be useful in predicting malignant transformation.

63	**DO MYOFIBROBLASTS DETERMINE THE BIOLOGICAL BEHAVIOUR OF ODONTOGENIC CYSTS AND TUMOURS?**

Hussaini HM*, Phua R*, Seo B* and Rich AM* (*Sir John Walsh Research Institute, Faculty of Dentistry, University of Otago, Dunedin, New Zealand)

Background: Studies have shown increased numbers of myofibroblasts (MFs) in the stroma of odontogenic lesions with locally aggressive biological behaviour. Keratinocytes in odontogenic lesions have been shown to release transforming growth factor (TGF)-β1 which activate the transdifferentiation of fibroblasts to MFs. In turn, MFs secrete matrix metalloproteinase (MMP)-2, potentiating active, rather than passive, lesional growth through bone resorption.

Objectives: To assess the expression of MFs, TGF-β1 and MMP-2 using immunohistochemistry (IHC) in odontogenic cysts and tumours and to correlate the findings with biological behaviour of the lesions.

Methods: Formalin fixed paraffin-embedded tissue samples of locally aggressive (odontogenic keratocysts; OKC (n = 11) and ameloblastoma; AM (n = 11)) and non-aggressive (radicular cysts, RC (n = 12) and dentigerous cysts, DC (n = 10)) odontogenic cysts and tumours were stained with antibodies against α-SMA, h-caldesmon, TGF-β1 and MMP-2. Qualitative and quantitative analyses of positively stained cells were undertaken and compared between the groups.

Results: Analysis of MFs was achieved with the inclusion of anti-h-caldesmon. The expressions of MFs and MMP-2 were significantly higher in the locally aggressive group (OKC and AM) in comparison with the non-aggressive group (RC and DC) ($P < 0.0001$). Interestingly, this was *vice versa* for the cytokine TGF-β1 whereby an increased expression was observed in RC and DC compared with the aggressive group ($P < 0.05$).

Conclusion: The high expression of MFs and MMP-2 positive cells in aggressive odontogenic lesions (OKC and AM) suggest that these cells may be responsible for the biological behaviour of these lesions.

64	**SYSTEMATIC REVIEW OF VARIOUS METHODS FOR ELUCIDATION OF IMMUNOHISTOCHEMISTRY RESULTS IN ORAL SQUAMOUS CELL CARCINOMA** Ibrahim N[a] and Zaini ZM[b] ([a] Department of Diagnostic Craniofacial and Biosciences, Faculty of Dentistry, National University of Malaysia. [b] Department of Oral and Maxillofacial Clinical Sciences, Faculty of Dentistry, University of Malaya) **Background**: Immunohistochemistry (IHC) is a recognized technique in health sciences for diagnosis, prognosis and experimental purposes. In oral squamous cell carcinoma (OSCC) studies, IHC has been widely used, however, there is lack of standardization in the analytical phase involving method of scoring and grading as well as reporting the results. **Objective:** to assess and compare the scoring methods from published literatures between different OSCC studies. **Methods**: Medline and Ovid advanced literature search platform was used to search for human studies published in English from 2010 until 2020. Searched terms were a combination ("AND") of the following four sets of keywords: 1) oral squamous cell carcinoma; 2) immunohistochemi*; 3) scor*; and 4) grad*. The reference lists of the searched articles were comprehensively reviewed to remove duplicates, case reports, letters, review and animal studies articles. Further screening of the abstracts excluded unrelated studies which did not meet the inclusion criteria. Finally, full-text articles were assessed for eligibility. **Results**: A total of 808 studies met the keywords search. Most were original research articles. However, further selection has to be done to fulfil the inclusion and exclusion criterias, as well as to choose only articles that describe the methodology in details. **Conclusions**: Commonly used semi-quantitative assessments of IHC stainings are described to facilitate analysis of OSCC studies

65	**HUMAN PAPILLOMA VIRUS INFECTION AND CORRELATION WITH EXPRESSION OF P16 GENE IN ORAL POTENTIALLY MALIGNANT DISORDERS AND ORAL CANCER**

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Background: Human Papilloma Virus (HPV) infection has been increasingly recognized as a major etiologic factor for a subset of oral squamous cell carcinoma (OSCC) and oral potentially malignant disorders (OPMDs). *p16*^{INK4A} gene is usually inactivated in many cancers. HPV leads to increase p16^{INK4a} levels.

Objectives: To investigate the presence of E7 and E6 oncogenes of HPV and expression of p16^{INK4a} in OSCC and OPMDs.

Methods: 12 OSCC, 71 OPMDs and 30 normal oral mucosal tissues were used. Out of OPMDs 24 cases of oral submucous fibrosis (OSF), 26 cases of oral lichen planus (OLP) and 21 cases of oral leukoplakia (OL). Expression of p16 was investigated by immunohistochemistry. E7 and E6 oncogenes were detected using Polymerase Chain Reaction.

Results: Twenty two (26.5%) cases were positive for p16 gene expression. Expression of p16 in OLP was 7 (8.4%) followed by 10 (12.1%) in OSF and 4 (4.8%) in OL. One OSCC case was positive 1(1.2%) for p16 and HPV E7 was detected in same specimen (8.4%). Out of OSF cases 1(4.2%) was positive for HPV and same specimen was positive for P16. For HPV E7 overall positivity was 2.4% and HPV E6 was negative for all cases. All positive HPV cases were male and positive for p16 gene expression

Conclusions: Significant correlation between HPV gene positivity and p16 gene expression was observed in OSCC and OPMDs. The findings also suggest that inactivation of p16 occurs at the early stage of the multistep carcinogenesis before the acquisition of an invasive phenotype.

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66	**AN ENIGMATIC ELUSIVE LESION OF THE MANDIBLE WHICH REFUSED TO HEAL: A PATHOLOGIST'S NIGHTMARE!!!** Indu S,[a] Babu N[b] ([a]Oral Pathology, Army Dental Centre (R&R), New Delhi. [b]Oral Surgery, Army Dental Centre (R&R), New Delhi) **Case report**: A 62 year old lady complaint of non- healing extraction socket in the lower left back teeth region. She underwent extraction of 37 at a private clinic following which an ulceroinfiltrative lesion developed at operated side. Multiple biopsies from the lesion were inconclusive. The patient was referred to ONCO OPD of Medical Hospital. FNAC and histopathology of an excised lymph node confirmed Reactive Lymphadenitis. CT revealed an osteolytic lesion radiologically simulating carcinoma or a chondrosarcoma. Because of persistent debilitating symptoms the patient underwent WLE with Left segmental mandibulectomy. Frozen sections were negative for malignancy. Biopsy at General Pathology Lab depicted parakeratotic lining with dense inflammation. No evidence of osteomyelitis, necrosis, dysplasia or malignancy was noted. All margins were free from malignancy. Lymph Nodes dissected showed reactive morphology. ZN, PAS & Gram Stain were all negative. Later, a 5x2 cm ulceroinfiltrative lesion redeveloped in 32 to 42 regions slowly progressing towards 45. PET CT from the lesion showed focal FDG uptake in anterior mandibular region. Because of increased suspicion of malignancy, WLE upto 47 was carried out. Histopathology showed degenerated bony fragments and flakes of lamellated keratin. No evidence of dysplasia or malignancy was noted. The lesion continued to spread even after successful surgical intervention with adequate surgical margin!!! The patient was eventually lost because of severe cardiac arrest during her last surgical intervention for mandibular arch reconstruction This could be one of case of a lifetime where multiple consultations with oral & General Pathologists failed to reach a conclusive diagnosis!!!

67	**IMMUNOHISTOPATHOLOGICAL VARIATION OF ORAL MYOPERICYTOMA**

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OBJECTIVES: Myopericytoma (MP) is a rare soft tissue neoplasm infrequently arising in oral cavity. We aimed to clarify the clinicopathological characteristics of oral MP based on histological and immunohistochemical findings.

METHODS: We reviewed myogenic neoplasms of our archives, and selected six cases of MP. Immunostainings were performed using antibodies for smooth muscle actin (SMA), calponin, h-caldesmon, muscle specific actin (MSA), desmin and type IV collagen antibody.

RESULTS: Our cases were female predominant, and the mean age and size were 57.5 years old and 10.8 mm, respectively. Histologically, 3 of 6 cases were well circumscribed but others showed ill-defined borders. Three cases were classical but others were angioleiomatous (AL) and myofibromatous (MF) cases with mostly fascicular pattern. Myxoid change appeared in 2 cases. Hyalinised nodules (vascular balls) were found in both classic and non-classic types. Only one case partially comprised small round cells mimicking glomus cells but these lacked peculiar type IV collagen expression. Two AL cases harbored dilated blood vessels. Two cases partially showed staghorn and indistinct biphasic pattern but a MF type demonstrated neither. Immunohistochemically, all cases tested were positive or focally positive for SMA, MSA and calponin but negative tumor cells were noted in part. However, h-caldesmon was only detected in 2 out of 5 cases examined. Desmin was constant-negative except for one classic case with focally positive reaction.

CONCLUSION: Oral MPs are morphologically and phenotypically heterogeneous neoplasms which can sometimes mimic angioleiomyoma or glomangioma. We have to recognize the presence of cases showing varied myogenic natures

68	**COMMON ORAL MUCOSAL LESIONS TO THE PATIENTS WITH OR WITHOUT CHRONIC VIRAL HEPATITIS**

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Background: Oral mucosal bullous, desquamative, ulcerative diseases involve immunopathological mechanisms that account for loss of adhesion between contiguous keratinocytes or to structures within the basal lamina.

Objectives: To study and understand the etiology and pathogenicity of the oral mucosal lesions to the patient with or without chronic viral hepatitis.

Methods: Five patients were selected to make the clinical and morpho pathological diagnosis by biopsy of the affected tissue. Three of them suffer from a viral chronic hepatitis.

Results: Five patients, 4 females and 1 male were diagnosed with oral mucosal lesion. Three of then suffer from oral lichen planus, one patient – with lichenoid reaction, and another – with Focal (frictional) hyperkeratosis with nicotine stomatitis of hard palate and smoking associated melanosis. Common lesions were minimal clinical symptomatic lesions on cheeks, extending to the lateral parts of the tongue, gums and lips. General status of the patients is distinguished by numerous general chronic diseases as viral chronic hepatitis, erithematous gastritis, reactive arthritis, vegetative nervous dysfunction.

Conclusions: Oral lichenoid reactions represent a common end point in response to extrinsic agents, altered self-antigens, or superantigens. Oral lichen planus, a common with not identified etiology inflammatory disorder, shares many clinical and histopathological features with oral lichenoid drug reaction and oral lichenoid contact reaction. Oral lichenoid reactions represent a common end point in response to extrinsic agents, altered self-antigens, or superantigens. Clinical presentation can vary from asymptomatic white reticular striae to painful l erythema and erosions. Most of the immunopathological oral mucosal diseases have the risk of malignancy and needs a special attention.

Acknowledgements: This study was partly funded by the DIKU and Eurasia project CPEA-LT-2016/10106

69	**AN UNUSUAL CASE OF ORAL TRAUMATIC ULCERATIVE GRANULOMA** Joseph BK, Ali MA, Dashti H, Sundaram D (Department of Diagnostic Sciences, Faculty of Dentistry, Kuwait University) **Background:** Traumatic ulcerative granuloma with stromal eosinophilia (TUGSE) is an uncommon condition considered to be a benign, reactive lesion that usually affects the tongue. The exact pathogenesis is not clear. However, trauma has been found to be a contributing factor in a majority of the cases. Here, we present an unusual case of TUGSE in an adult patient. **Case report:** A 26–year-old male patient was referred to the Kuwait University Dental Center with a painful, lesion on the dorsal surface of the tongue since 7 months. On examination, a diffuse ulcerative proliferative lesion with erythematous borders was seen on the dorsal surface of the tongue. On palpation, the lesion was very tender and deep clefts were observed. After a week of prednisolone mouthwash, the patient felt that his pain had reduced and was able to eat. Incisional biopsies showed partially ulcerated stratified squamous epithelium covered by fibrin. The underlying stroma was edematous, highly vascular with dense inflammatory infiltrate, the majority of which were eosinophils, histiocytes and plasma cells. The inflammatory infiltrate extended into the underlying skeletal muscle. These features were suggestive of TUGSE. Immunohistochemical analysis showed positivity to T-cell markers CD-3, CD-30; B-cell marker CD-20 and histiocyte marker CD-68 implying a mixed inflammatory infiltrate. On follow up, the patient reported improvement but was concerned that the lesion has not healed completely. **Conclusions:** Recognition of the lesion is important because it often mimics malignancy. However, traumatic granuloma is a self-limiting lesion that usually heals within 2-3 weeks.

70	**PROGNOSTIC IMPACT OF BRANDWEIN-GENSLER HISTOLOGICAL RISK SCORE AND TUMOR INFILTRATING LYMPHOCYTE SUBSETS IN ORAL SQUAMOUS CELL CARCINOMA**

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Background: Despite improvements in treatment modalities, 5-year survival of oral squamous cell carcinoma (OSCC) is static. There is a shift in focus from tumor cell biology to tumor host interactions, which serve as novel, relatively unexplored avenues for identification of prognostic/predictive biomarkers. The Brandwein-Gensler Histological Risk Score (BG-score) is a scoring system based on parameters assessing tumor host interactions. Tumor-infiltrating lymphocytes (TILs) are the major immune cells in the OSCC microenvironment.

Objectives: To assess impact of BG-score and TIL subsets on patient outcome in OSCC.

Methods: BG-score was performed on 178 OSCC excisions, and cases classified into low, intermediate and high risk groups. Immunohistochemistry for TIL subsets was performed on 50 cases. Results were correlated with disease-free survival (DFS) and overall survival (OS).

Results: Twenty-five low (14%), 93 intermediate (52%), and 60 high risk (34%) cases were identified. Two-year DFS and OS were 22.5% and 34.8% in high, 57% and 68.8% in intermediate, and 96% and 96% in low risk groups. BG-score coupled with pathological stage had greater predictive value (78.8%) than BG-score (69%) or pathological stage (72.5%) alone. High CD8 count, low FOXP3 count, and CD8:FOXP3 ratio >1.46 were significantly associated with improved survival.

Conclusion: BG-score is a simple risk assessment technique with high prognostic impact. Tumor host immune response has a significant impact on prognosis, with increased CD8+ and low FOXP3+ cells being associated with improved outcome. A case is made for BG-score and TIL subset identification to be incorporated into routine histopathological evaluation of OSCC, as biomarkers for risk stratification and planning adjuvant treatment.

71	**DECODING THE GENE EXPRESSION PROGRAM EVOLVED IN ODONTOGENIC KERATOCYST BY THE COMBINATION OF DEEP TRANSCRIPTOMICS ANALYSES AND COMPUTATIONAL BIOLOGY TOOLS**

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Background: *Transcriptomics* analysis of odontogenic keratocyst (OKC) has been described in three microarray-based studies utilizing fresh-frozen or formalin-fixed paraffin embedded (FFPE) samples. Up to date, RNA-sequencing (RNA-seq) technology has been applied only for the *transcriptomics* analysis of OKC-derived fibroblasts.

Objectives: RNA-seq analysis of the entire OKC tissue will enable the identification of the gene expression profile that accompanies OKC development.

Methods: Total RNA was extracted from FFPE samples of 3 OKCs and 3 dental follicles of third molars. RNA library preparation and 150-bp paired-end sequencing were implemented using an Illumina Hiseq4000 Sequencer followed by application of advanced computational biology tools, e.g. edgeR software package and Galaxy platform.

Results: RNA-sequencing resulted in ~15-40 millions paired-end reads per sample. A total of 1335 differentially expressed genes (DEGs) between OKCs and dental follicles (fold change ≥2) were captured. Gene Ontology Classification analysis identified markers of epidermal cell development and differentiation (e.g. DSP, TFAP2A, FOXM1) among top upregulated DEGs, markers of extracellular matrix organization and nervous system regulation (e.g. ADAMTS14, COL3A1, NAV3), among top downregulated DEGs and various transcription factors in both categories exemplified by the upregulation of the epidermal master regulator TP63 in OKCs.

Conclusions: This is the first RNA-seq-based study of the entire OKC. The preliminarily results show significant upregulation of genes commuting to epidermis development/differentiation, a finding consistent with OKC histopathologic phenotype. The identification of novel DEGs is critical in order to access unknown elements of the molecular mechanism underlying OKC pathogenesis and biologic behavior, with potential for future therapeutic applications

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HUMAN PAPILLOMAVIRUS (HPV)-ASSOCIATED ORAL INTRAEPITHELIAL NEOPLASIA: A CASE REPORT

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Background: 'HPV-associated oral intraepithelial neoplasia' is a subset of oral dysplastic lesions with the presence of transcriptionally active high-risk oncogenic HPV subtypes 16 and 18. There is limited evidence in the literature regarding the potential rate of transformation of this entity to oral squamous cell carcinoma (OSCC).

Case report: 51 year old male patient with a heavy smoking (35 pack-year) and alcohol consumption (6 standard drinks a day) history presented with widespread oral leukoplakia. Initial biopsies demonstrated:

	Site	Histopathology Findings
1.	Floor of mouth (FOM):	keratosis with moderate to focally severe epithelial dysplasia
2.	Left lower lip:	actinic keratosis with mild to moderate epithelial atypia
Subsequent mapping biopsies (sites 3, 4) and wide local excision (site 5) demonstrated:		
3.	Left ventral tongue:	HPV-associated intraepithelial neoplasia
4.	Lower lip:	carcinoma in situ (CIS)
5.	Right anterior ventral tongue/FOM:	HPV-associated intraepithelial neoplasia, with excision margins free of dysplasia

Investigations: For sites 3 and 5, immunoperoxidase stains demonstrated diffuse, positive p16 staining of dysplastic epithelium while HPV-16 in situ hybridisation showed positive nuclear staining. Both sites demonstrated hyperkeratosis, basal cell hyperplasia, increased numbers of mitoses (including suprabasal) and interspersed apoptotic cells.

Follow up: Wide local excision of the anterior ventral tongue and floor of mouth demonstrated HPV-associated intraepithelial neoplasia with involved margins (p16 and HPV-16-ISH positive). The lower lip vermilionectomy showed CIS with clear margins. There is ongoing 3 monthly mucosal surveillance.

Discussion: Further studies are required to evaluate the behaviour and prognosis of this subset of HPV-related oral dysplastic lesions.

73	**CLINICO-PATHOLOGICAL ANALYSIS OF MINOR SALIVARY GLAND BIOPSIES FROM PATIENTS WITH XEROSTOMIA - HAS IgG4-RELATED DISEASE BEEN MISSED?**

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Background: Xerostomia resulting from medications or systemic disorders may differ in histopathological findings.

Objectives: To compare clinical and pathological features from patients with xerostomia and minor salivary gland biopsies, and search for features suggesting IgG-related disease.

Materials & Methods: Retrospective analysis, consecutive biopsies 2009-2017. Histomorphometry included glandular architecture, fibrosis, fat replacement, inflammation density, plasma cells, IgG/ IgG4 in selected cases.

Results: The study included 64 cases, 18M: 46F, mean age 56. Biopsy was taken for suspected Sjögren syndrome (SS) in 58 (91%) cases. 54 biopsies had adequate specimen for SS evaluation; only 12 (22.2%) met microscopic criteria supporting SS. Polypharmacy (> 3 drugs) was found to be inversely related to SS, ($p=0.05$). The majority (63%) of the entire study group had various systemic conditions, most often hyperlipidemia and high blood pressure (28% each). The use of medications was recorded in 66%, 50% of which used 2 or more. Fat replacement, fibrosis and acinar atrophy showed significant correlations with increased age ($p<0.05$). Fat replacement correlated with hyperlipidemia and polypharmacy. Stains for IgG/ IgG4, performed in 4 cases in which fibrosis and plasma cells were observed, were all negative.

Conclusions: SS was confirmed in only 22% of cases. Increased age correlated with acinar atrophy, fat replacement and fibrosis, explaining xerostomia in non-SS elderly patients. Hyperlipidemia showed associated fat replacement. Polypharmacy was significantly more common in non-SS cases. Attention to patients' medical history and medications used may lead to correct diagnosis, reducing the need for lip biopsy in the majority of cases.

74	**COMPARISON OF THE 7TH AND 8TH EDITIONS OF THE UICC TNM STAGING SYSTEM FOR ORAL CAVITY CARCINOMA IN THE PREDICTION OF DISEASE SPECIFIC SURVIVAL** Kennedy RA. (Oral Pathology, Faculty of Dentistry, King's College London) **Background:** The 8th ed. TNM staging system introduced depth of invasion into T staging and extra-capsular metastatic spread into N staging for oral cavity carcinomas. **Objectives**: Compare the 7th and 8th ed. UICC TNM staging systems for oral cavity carcinoma in the prediction of disease specific death using a local cohort. **Methods:** 100 cases of oral squamous cell carcinoma with at least 5 years follow up data were retrieved and staged by the 7th ed. and 8th ed. TNM. Correlation with disease specific survival was examined by construction of Kaplan–Meier curves and then application of Logrank test for trend or Gehan-Breslow-Wilcoxon test. **Results:** T staging by 7th ed. TNM did not correlate significantly disease specific survival while T staging by 8th ed. did correlate significantly. N stage correlated with disease specific survival for both the 7th ed. TNM and 8th ed. TNM. Overall staging by 7th ed. TNM did not correlate significantly with disease specific survival. Overall staging by 8th ed. TNM did correlate significantly with disease specific survival. Significantly reduced disease specific survival was seen for N0 cases with a depth of invasion greater than 5mm. For N positive cases, a depth greater than 5mm did not show a significant impact on disease specific survival. Node positive cases with extra-capsular spread showed significantly worse survival than those without. **Conclusion:** The findings support depth of invasion as a prognostic factor for N0 cases and extra-capsular spread as a prognostic factor for N positive cases of oral squamous cell carcinoma.

75	**PERINEURAL INVASION AND WORST PATTERN OF INVASION AN IMPORTANT PREDICTOR FOR RECURRENCE AND NODAL METASTASIS**

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Background: Prognostic implications for the head and neck squamous cell carcinoma (HNSCC) are related to many clinico-pathological parameters. Recent advancement in histopathological assessment has led to the inclusion of Perineural invasion (PNI) and Worst pattern of invasion (WPOI) for staging and management of HNSCC as important prognostic parameters.

Objective: To assess the relationship of PNI and WPOI to Lymph node metastasis including Skip Metastasis, risk of recurrence and death in the patients of HNSCC.

Methods: Patients undergoing primary salvage surgery for HNSCC were enrolled in this prospective one year follow up study from January 2019 to January 2020 with a mean age 45.84 $\pm$ 10.59 years. Clinico-pathological parameters of age, gender, size, site, staging, grading, histological variant, DOI, LVI, WPOI, ECS, nodal metastasis, recurrence and skip lesions were assessed keeping confidence level of 95% with p value < 0.05 taken as significant.

Results: Perineural invasion was seen to be positive in 47.8% of the cases and worst pattern of invasion was seen in 70.2% of the cases. (44.7%) had positive nodal metastasis. Recurrence and death was seen in 10.6% cases and skip lesion in only 4.3%. Significant association was seen between Perineural invasion and recurrence with p value of 0.02 and also between WPOI and nodal metastasis with p value < 0.001.

Conclusion: WPOI is significantly related to nodal metastasis whereas PNI with recurrence. Patient with PNI and WPOI are the candidates with increase chance of recurrence and nodal metastasis and will require aggressive treatment and management for improving prognosis.

76	**DIFFERENTIATED ORAL INTRAEPITHELIAL NEOPLASIA (DOIN), AN UNDER-RECOGNIZED ENTITY**

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Background: Differentiated oral intraepithelial dysplasia (DOIN) was described by Japanese pathologists in 2007, but is not recognized by the World Health Organization (WHO). As in the vulva and penis, differentiated dysplasia in the oral cavity is a diagnostic challenge.

Objective: We determined reliable histologic criteria for the diagnosis of DOIN and assessed the usefulness of cytokeratin (CK) 13 and 17, combined with proliferation marker KI67. The frequency of DOIN in oral squamous cell carcinoma (OSCC) was also estimated.

Methods: All OSCC cases from 2014 to 2017 were reviewed for the presence of dysplasia. For differentiated dysplasia histologic features were studied in detail, and diagnostic criteria were established. Inter-observer agreement was measured. Immunohistochemistry with CK13 and CK17/Ki67 was performed.

Results: We noted DOIN in 69% (143/207) of OSCC cases. The histologic changes of DOIN were conspicuous in only 27% of cases, while in 73% the changes were subtle.

Immunohistochemistry with CK13 and CK17 correlated with the histology: loss of CK13 and expression of CK17 in dysplasia, combined with KI67 altered expression.

Conclusion: Differentiated dysplasia (DOIN) is more frequently associated with oral carcinoma than usual dysplasia. In most cases the histologic changes are subtle. In this study we have attempted to define the histologic criteria. Cytokeratin's 13 and 17/KI67 can be useful for supporting the diagnosis, especially in cases with subtle histologic changes.

Recognition of subtle dysplastic changes will lead to progress in knowledge and treatment. We hope that the WHO will in future recognize differentiated oral intraepithelial dysplasia (DOIN).

77	**THE DIAGNOSIS OF SO-CALLED ORAL EPITHELIOID LEIOMYOMA REVISITED AND REVISED. APPRAISAL OF IMMUNOHISTOCHEMICAL PROPERTIES REVEAL A "TRANSMOGRIFIED" MYOFIBROBLASTIC PROLIFERATION WITH SELECTIVE TERMINAL SMOOTH MUSCLE DIFFERENTIATION.**

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Background: In 1996, an unusual oral lesion was described as epithelioid leiomyoma featuring epithelioid and spindle cells that expressed smooth muscle actin (SMA) and selectively desmin (DES).

Objectives: To revisit the morphologic properties of such lesions given a) the availability of novel and more specific smooth muscle markers, and b) the significant advances made in the characterization of myofibroblasts.

Methods: Two examples were studied that presented as hyperplastic polyps on the buccal mucosa of two females, 38 and 80 years old, respectively. Immunohistochemical evaluation was performed for SMA, DES, calponin (CALP), smooth muscle myosin (SMM), h-caldesmon (h-CALD), smoothelin (SMOO), MyoD1, myogenin (MYOG), collagen type IV (COLIV), laminin (LAM), CD68 and CD34.

Results: The lesions were characterized by two cell types a) epithelioid cells with eosinophilic, granular, or clear cytoplasm, and b) elongated spindle cells with eosinophilic cytoplasm showing spindle tapered nuclei. The stroma was fibromyxoid and vascular. Cells of interest were highlighted and equally decorated by SMA, CALP and SMM. DES, h-CALD and SMOO identified fewer spindle and epithelioid cells with these three antibodies decorating the same cell population which also exhibited COLIV and LAM positivity. MyoD1, MYOG and CD34 were negative. CD68 highlighted few spindle and epithelioid cells suggesting presence of lysosomes.

Conclusions: Based on advances in the study of myofibroblasts, present findings confirm the capability of myofibroblasts to attain or transform into smooth muscle properties. The present cases are reactive myofibroblastic lesions with transformation of some cells into smooth muscle cells. The term epithelioid leiomyoma is not favored.

78	**SYNCHRONOUS ORAL SQUAMOUS CELL CARCINOMA (SCC) AND LUNG ADENO-CARCINOMA - THE VALUE OF SCREENING CHEST COMPUTED TOMOGRAPHY (CT): A CASE SERIES.** Kwong KC [a], Coleman H [b], Schifter M [a] ([a]Westmead Centre for Oral Health Westmead Hospital, Westmead and Dental School, Faculty of Medicine and Health, The University of Sydney, [b]Douglass Hanly Moir Pathology, Macquarie Park. Sydney. Australia). **Background:** Lung cancer is present in 1.1% of patients with oral (Head and Neck) SCC. Guidelines recommend that all patients with Head and Neck SCC receive chest CT as part of their diagnostic and surgical evaluation, given that smoking is an established risk factor for cancer of both sites. The diagnosis of a synchronous lung cancer will alter the management of the patient. **Case 1.** An 85-year-old man with 60 pack-year smoking history presented with a T1N0M0 floor of mouth SCC. His ECOG) performance status was 1. CT demonstrated a 23mm spiculated mass in the right upper lung lobe. PET demonstrated avidity in the lung mass (SUV 7.8), as well as multiple mildly avid associated lymph nodes. Lung biopsy demonstrated an infiltrative adenocarcinoma. Endobronchial ultrasound (EBUS) guided FNA biopsies of the lymph nodes were unremarkable. The patient underwent stereotactic radiation therapy for the lung cancer, and is awaiting definitive surgery for his oral cancer. **Case 2** A 53-year-old man with a 50 pack-year smoking history presented with a T3N2 floor of mouth SCC. CT and PET demonstrated a 44mm apical mass of the left lung, invading the mediastinum. Treatment of the oral SCC was deferred until confirmatory biopsy with a view to management of the suspected lung cancer. **Conclusion:** These cases highlight the value of chest CT chest as part of the comprehensive evaluation of patients presenting with oral (Head and Neck) cancer.

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IMMUNOHISTOCHEMICAL EXPRESSION AND DIAGNOSTIC SIGNIFICANCE OF NM23 PROTEIN IN AMELOBLASTOMA AND AMELOBLASTIC CARCINOMA

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Background: Clinico-histopathologic assessment of patients with ameloblastoma and ameloblastic carcinoma remains the best diagnostic modality for the tumours. However, in cases where the criteria for arriving at a definitive diagnosis are not clear-cut, the pathologist is faced with a dilemma and thus an imperative need for adjunct diagnostic methods.

Objectives:

1. To evaluate/ compare the immunohistochemical expression of nm23 in classical, borderline(atypical) ameloblastoma and ameloblastic carcinoma.
2. To assess usefulness of NM23 in closing diagnostic gaps between ameloblastoma and ameloblastic carcinoma.

Methodology: Twenty-four cases of ameloblastoma **(**10 ameloblastoma with classical histopathologic features, 8 with non-classical histopathology(atypical) and 6 cases of ameloblastic carcinoma were selected from cases seen at the Oral pathology laboratory of the Lagos State University college of Medicine, Lagos Nigeria**.** Nm23 immunostaining protocol was done on the selected tissue blocks and evaluated using the Sinicrope method. Analysis was done using STATA 14.

Results: Positive Nm23 staining was observed in all the cases of ameloblastoma and ameloblastic carcinoma with more intense staining observed in the stellate reticulum like areas than the ameloblast like areas. AC (100%) stained intensely with NM23 compared with atypical cases (37.5%) and ameloblastoma (20.0%)($p=0.04$). The mean aggregate score (MAS) was also significantly higher in AC (11 ± 2.4) with $p=0.01$. MAS was also significant amongst growth pattern of ameloblastoma ($p=0.02$)

Conclusion: The findings in this study reveal the usefulness of Nm23 in differentiating ameloblastoma from ameloblastic carcinoma; a more comprehensive study with a larger sample size will however be recommended to corroborate or refute the findings in this study.

80	**GREAT IMMUNOGLOBULIN G4-RELATED LESION MIMICS PYOGENIC GRANULOMA OF GINGIVA: A RARE CASE REPORT**

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Background: Immunoglobulin G4-related disease(IgG4-RD) is an immune-mediated disease with single or multifocal mass lesions characterized by a fibrosclerotic inflammatory, and lymphoplasmacytic infiltration which may affect unique or multiple organs. The pathophysiology of IgG4-RD is still not very clear. Rare cases have been documented in the maxillofacial region.

Case report: The present study is to report a rare case of a middle-aged male patient with an increase mass in the lingual side of the left mandibular region over a year. The huge, movable, pedunculated, nodular lesion was adjacent to the gingiva extending anteriorly to lateral incisor and posteriorly to first molar, and reaching the level of occlusal surface. First clinical impression was pyogenic granuloma. After further radiology, histopathology and immunohistochemistry examinations, it revealed IgG4-RD. Excisional surgical treatment performed, and the outcome was good.

Conclusions: The precise diagnosis for the novel disease IgG4-RD is full of challenging. Knowing of the potential for IgG4-RD to mimic other disorders and being aware of how to inspect and choose treatment strategies in patients by the current criteria will lead to better results.

81	**MICROINVASIVE PROTOCOL FOR PREOPERATIVE DIAGNOSIS OF MINOR SALIVAR GLANDS MEC ALLOWING TARGETED SURGICAL THERAPY**

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Background. Mucoepidermoid carcinoma (MEC) is the most common intraoral malignancy mainly located between hard and soft palate. Its surgical therapy could be difficult and depends from location, dimension, infiltration and histological grading.

Objectives. The aim is report the importance of a clinic-pathological protocol for microinvasive preoperative diagnosis, grading and staging of MEC in order to sketch out a targeted surgical therapy in intraoral difficult locations.

Methods. In 64 cases of intraoral MEC treated between 2000/2019 at the Oro-maxillo-facial surgery Unit of Policlinico-University-Hospital of Bari (Italy), was performed the following pre-operative protocol: clinical examination, high definition intraoral ultrasonography, radiological assessment (rxOPT, TC/MRI), micro-invasive biopsy with FNAB/FNAC with HeE, PAS+/-Alcian stains and immunohistochemical panel (high/low-MW cytokeratins, calponin, SM-actin, S-100, Ki-67). Surgery was targeted for each patient and guided from histopathological data, and consisted in conservative excision with wide margins for low-grade MEC, and demolitive resection with neck dissection for high-grade MEC.

Results. Application of our protocol gave a 100% preoperative histological diagnosis and grading. 41 cases were low-gradeMEC (29F and 12M, mean-age 37; site: 33 palate, 4 cheek, 2 lip and 2 tongue); 23 were High-grade-MEC: 16F and 7M, mean-age 41, 19 palate, 1 cheek, 2 lip and 1 tongue; 4 were Clear cells.

Conclusions. Preoperative FNAB/FNAC for histological diagnosis of MEC is mandatory in order to make decisions on the type of surgical treatment to avoid over or undertreatment.

82	**THE IMPACT OF AN EDUCATIONAL VIDEO ABOUT RADIOTHERAPY AND ITS TOXICITIES IN HEAD AND NECK CANCER PATIENTS**

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Background: Head and neck radiotherapy can cause several toxicities and its management has important treatment implications. Proper information about treatment is crucial to assist patients by preparing them and enhancing their ability to manage their illness.

Objectives: This study aimed to verify the impact of an educational video on the improvement of the patient's understanding, satisfaction, quality of life, and the influence on their emotional state in different moments of the treatment.

Methods*:* A 10-min video about head and neck radiotherapy and its toxicities was produced. A prospective randomized clinical trial was performed in two groups: the control (n=65), which received standard verbal and written information, and the experimental group (n=65), which received standards information and the video. Appropriated questionnaires (HADS, UW-QOLv4, IRTU, and Post-RTU) were applied in 4 different moments in order to evaluate patients' understanding, anxiety, depression, and quality of life.

Results: The video improved the understanding of treatment and its side effects. Also, the video group reported better awareness about oral health care during the treatment. Osteoradionecrosis and radiation-related caries were the most patients' unknown side effects. On the other hand, the educational video did not modify the patients' anxiety, depression, and quality of life. All patients reported high satisfaction about the video.

Conclusions: Audio-visual tools may improve patients' understanding of radiotherapy and showed to be a useful tool to be used in association with verbal and written information in cancer centers. In addition, information about osteoradionecrosis and radiation-related caries must be reinforced to the patients.

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MELANOCYTES IN ODONTOGENIC CYSTS

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OBJECTIVES: Melanocytes are widely distributed in the skin and often in oral mucosa, but normally not existing in bone tissue. The aim of this study was to compare the existence of melanocytes in odontogenic keratocyst (OKC) and radicular cyst (RC), and to clarify the difference of their origin between those cysts.

METHODS: One hundred and ten cases of each OKCs and RCs were used. In OKC, 88 cases showed sporadic type (SPO), and 22 cases involved basal cell nevus syndrome (BCNS). And OKC samples were divided into 54 cases of juvenile group (0-29 years old) and 56 cases of advanced group (30-70 years old). We researched these cysts with Melan-A and HMB45 immunohistochemical and Schmorl's reaction staining. Melanocytes were detected using Melan-A and HMB45 immunohistochemical stainings, and melanin pigmentation was detected using Schmorl's method.

RESULTS: Melanocytes and melanin pigmentation were shown in OKC, and neither melanin pigmentation nor melanocytes was existed in RC. The positive rate of Schmorl's reaction, Melan-A and HMB45 staining were significantly higher in juvenile group than advanced group. These rates were also higher in BCNS than SPO.

CONCLUSION: Our data raise the important possibility that the origin of OKC epithelium differs from RC by the expression of melanocytes and melanin pigmentation. And also our findings underscore that the fact that the origin of OKC differs between younger and older patients. It is suggested that the melanin pigmentation and melanocytes expression may assist in the classification of odontogenic cysts in the future.

84	**CLINICAL CHARACTERIZATION OF PATIENTS WITH BURNING MOUTH SYNDROME** Martínez Carolina, Palacios Verónica. (Escuela de Odontología, Pontificia Universidad Católica, Chile). **Background:** Burning mouth syndrome (BMS) is a condition characterized by burning sensation in the oral mucosa, especially the tongue. It mainly affects women, severely undermining their quality of life. Sometimes patients also report xerostomia, a symptom that can appear together with decrease in salivary flow, and dysgeusia. **Objective:** To describe clinical characteristics related to patients with BMS (age, gender, location of pain, association with xerostomia or dysgeusia, emotional symptoms, unstimulated salivary flow and alterations in laboratory tests). **Methods:** Nineteen patients with BMS were evaluated. For data analysis descriptive statistics and unpaired T test were performed. **Results:** All patients were women, mean age 61,4. Pain was mainly located in the anterior area of the tongue. Fourteen patients (73,7%) presented an additional symptom, the most frequent being xerostomia; however, we didn't find significant differences in unstimulated salivary flow with the control group. Also, 73,7% reported feeling stressed, anxious and/or depressed, while only 5 patients (26,3%) presented a laboratory test altered. **Conclusion:** BMS is a pain disorder that affects the quality of life; the psychological profile is an important aspect to consider in our evaluation as some patients may need a referral for psychological therapy.

85	**BISPHOSPHONATE RELATED OSTEONECROSIS OF THE JAWS (BRONJ) STAGE 3 IN A PATIENT WITH LUNG CANCER AND BONE METASTASIS - A CASE REPORT** Mavros A, Chiliou G, Nicolaou Z. (International College for Maxillo-Facial Surgery, Limassol. Cyprus) **Background:** Bisphosphonates are used mainly to treat osteoporosis, multiple myeloma and bone metastasis of tumors. However, their use has been associated with the appearance of osteonecrosis of the jaw (BRONJ), even though their exact mechanism of action is not yet well understood. Research shows that it is related to the suspension of bone resorption as a result of the reduction of the osteoclast activity. **Objectives:** The present study reports the case of a 61-year-old male patient with lung cancer exhibiting bone metastasis, who developed BRONJ while receiving Zoledronic Acid. According to the AAOMS staging system he was on stage 3 which includes exposed and necrotic bone, oral antral/ oral nasal communication and extra-oral fistula. **Results:** The patient was managed with antibacterial mouth rinse, antibiotic therapy and pain control, surgical debridement and resection for long term palliation of infection and pain, as well as closure of the oral antral/nasal communication and extra-oral fistula. The patient was in excellent condition after 8 months and continued his treatment with dental restoration. **Conclusions:** Our case study shows that with proper treatment there can be complete recovery of a patient with stage 3 BRONJ. The methods of prevention and treatment of BRONJ are discussed based on references and clinical experience.

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EPIGENETIC REPROGRAMMING IN ORAL EPITHELIAL DYSPLASIA USING SODIUM VALPROATE: AN *IN VITRO* STUDY PARALLEL TO THE SAVER TRIAL

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Background: Current management of Oral Epithelial Dysplasia (OED) focuses on preventing malignant transformation of the index lesion without addressing the risk of cancer development at other oral sites. Sodium Valproate (SV) was identified as a potential chemopreventive agent for head and neck cancer due to the dose- and time-dependent protective effect seen in a large retrospective cohort study.

Objectives: Determine the effect of SV on cell proliferation, HDAC-activity and protein expression in dysplasia cell lines in monolayer and develop 3D organotypic models to assess effect of SV on invasion.

Methods:

- Dysplasia cell lines (D20, DOK and D35), normal oral keratinocytes (FNB6) and oral cancer fibroblasts (LIV9 and LIV22) cultured in monolayer.
- MTT assays, HDAC-glo assay, Western Blotting and LINE-1 Pyrosequencing.
- 3D collagen models (cancer fibroblasts and dysplastic epithelial cells) exposed to 1mM SV for 7 days before processing. Changes in invasion pattern and depth are assessed on H&E-stained slides.

Results: Exposure to 1mM SV for 48 hours reduces cell proliferation and HDAC activity and results in increased expression of acetylated histones vs control. SV has no effect on global DNA methylation. 3D models have been developed and are being optimised for gene-expression studies.

Conclusions: This *in vitro* study runs parallel to the SAVER trial, a multi-centre double-blind randomised controlled trial of Sodium Valproate vs Placebo in 110 patients with high-risk OED. We have confirmed the mechanism of action of SV as a HDAC-i with higher expression of acetylated histones when dysplasia cell lines are exposed to SV at clinically-relevant concentrations.

87	**NON-SEMINOMATOUS GERM CELL TUMOUR METASTATIC TO THE MAXILLA**

Meer S. (Department of Oral Pathology, Faculty of Health Sciences, University of the Witwatersrand)

Background: Extragonodal germ cell tumours (GCT) primarily affect the sacrocccygeal region. Head and neck GCT is rare accounting for 3% of paediatric neoplasms. Only isolated cases of metastatic GCT have been reported.

Objectives: To report a unique case of a metastatic non-seminomatous germ cell tumour of mixed phenotype with yolk sac tumour, embryonal carcinoma and immature teratoma components.

Clinical findings: A thirteen-year old male presented with a rapidly enlarging, painless right maxillary tuberosity mass, present for four months. The tumour was on the buccal gingiva extending to the hard and soft palate posteriorly. Ipsilateral submandibular lymphadenopathy was evident. No pathology was noted on the panelipse and periapical radiographs. The clinical impression was that of a lymphoma or Kaposi sarcoma.

Pathological findings: The histology showed an extensively infiltrative high grade malignancy composed of small, round, blue, discohesive tumour cells demonstrating a solid growth pattern, with areas of adenocarcinoma and squamous differentiation with keratinisation. Surface dysplasia was not present. Brisk mitotic activity was noted. Immunohistochemistry revealed positivity with for AE1/AE3, SALL4, Glyplican 3, and OCT3/4, confirming the diagnosis of a metastatic non-seminomatous GCT of mixed phenotype.

Summary: Benign teratomas are the most common childhood extragonodal tumours, followed by yolk sac tumours which frequently arise in the ovaries and testis. Yolk sac tumours that frequently arise in the ovaries and testis have been reported but continue to be a rare extragonodal tumour and are difficult to diagnose. This report reviews germ cell tumours in the spectrum of metastatic disease to the oral cavity.

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PLASMABLASTIC LYMPHOMA: ORAL VERSUS EXTRA-ORAL

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Background: Originally thought to be exclusive to the oral cavity in human immunodeficiency virus (HIV)-infected persons, plasmablastic lymphoma (PBL) is increasingly described extra-orally, and in non-HIV-infected patients. Demographic data is often dependent on case reports, case series and systemic reviews.

Aim: This is an epidemiological, morphological and immunological comparison of oral and extra-oral PBLs in a high HIV endemic setting.

Methods: This retrospective study of extra-oral and oral PBLs diagnosed over five-year period analysed patient's age, gender, HIV status and tumour site. Histologic diagnosis was confirmed and tumours assessed immunohistochemically with CD45 (LCA), CD20, CD79a, PAX5, CD138, MUM1, BLIMP1, VS38c, Ki-67, BCL6, CD10, and HHV8 using the manufacturer's protocol. The presence of EBV was assessed by chromogenic *in-situ* hybridisation. Ethics clearance: M10750.

Results: There were 46 extra-oral and 54 oral PBLs. Age ranged from 9-59 years (extra-oral) and 22-78 years (oral). In known HIV cases, 95% extra-oral and 97% oral were HIV-positive. None had systemic disease at presentation. Male: female ratio was 1.4:1 for extra-oral and 2.7:1 for oral PBLs. The favoured extra-oral and oral sites were anus (28%) and maxilla (29%). Immunohistochemical profile recapitulated that previously reported, except for CD45 expression which was higher (85.7%, extra-oral; 97%, oral). EBV was positive by *in situ* hybridisation in 96% of PBLs, 93% extra-oral and all oral PBLs.

Conclusion: Extra-oral and oral PBL are identical in gender and age distribution, HIV status, morphological appearances, immunophenotypic profile and EBV association. PBL should be regarded as the same tumour irrespective of oral or extra-oral site of origin.

89	**PLASMA CELL CHEILITIS TREATED WITH TOPICAL CORTICOSTEROID AND PHOTODYNAMIC THERAPY – CASE REPORT** Minicucci, EM, Lerco, MV, Cruz AR, Cagnon, GV, Alvares, BA, Schimit, JV (Clinical Hospital of São Paulo State University (UNESP), Medical School, Botucatu, Brazil) **Background:** Plasma cell cheilitis (PCC) is rare, idiopathic, and benign inflammatory mucosal condition of unknown etiology, characterized by a dense plasma cell infiltrate within mucosa, affecting principally the lip and the treatment include topic, intralesional or systemic steroids, oral griseofulvin, liquid nitrogen, radiotherapy and surgical excision. In most cases, PCC is resistant to topical treatment **Objectives:** To report the treatment of PCC associated topical corticosteroid with photodynamic therapy (PDT). **Methods**: 68 **year**-old woman was referred to oral medicine ambulatory of Clinical Hospital of São Paulo State University (UNESP), Medical School, Botucatu, Brazil, reporting the appearance of sore wound with crust on the lower lip with progressive worsening without comorbities, for 5 months. Clinical examinations showed ulcerated area with crust all over the lower lip. Diagnostic hypotheses were exfoliative cheilitis, cheilitis granulomatosa and squamous cell carcinoma. Incisional biopsy revealed dense in infiltrate inflammatory infiltrate within the superficial corium, which consisted of sheets plasma cells with occasional active blast cells. The treatment was topical 0,05% clobetasol gel twice a day with PDT twice/week (0,01% methylene blue topical for 3 minutes; irradiation was punctual by contact, energy 9J, 660 nm, 100 mW, per point in two points until complete healing. **Results:** The lesions were regressing with decreased pain. Total healing occurred in 3 mouths. **Conclusion:** The association of topical corticosteroid with PDT suggest to be an alternative for the treatment of PCC.

90	**ROUND CELL MALIGNANCIES OF OROFACIAL REGION- A DIAGNOSTIC PERPLEXITY** Mishra D[a], Kaur H[a], Roychoudhury A[b], Kakkar A[c] ([a] Oral Pathology and Microbiology and [b] Oral and Maxillofacial Surgery, Centre for Dental education and Research, All India Institute of Medical Sciences, Delhi, India. [c]Pathology, All India Institute of Medical Sciences, Delhi, India) **Background:** Round cell tumors encompass a wide spectrum of lesions. The separation and distinction of these lesions demand pathology expertise along with correlation of history, clinical site, imaging findings and pertinent ancillary techniques like immunohistochemistry to ascertain a correct diagnosis. Discrimination between these entities is important because of difference in treatment and prognosis of these lesions. **Objectives:** The aim of this study is to discuss the perplexing cases of round cell malignancies encountered at our center, how the final diagnosis was ascertained thereby devising a algorithm and diagnostic approach for these lesions. **Methods:** Retrospective analysis of round cell malignancies reported in the Department of Oral Pathology and Microbiology, Centre for Dental Education and Research, All India Institute of Medical Sciences, Delhi since January 2018 to January 2020 were done independently by three pathologists. A list of differential diagnosis was made in each of the case with pertinent positive and negative immunohistochemical markers that paved way for final diagnosis. **Results:** The various round cell malignancies reported at our center were Ewing's Sarcoma, hematolymphoid malignancies, sinonasal undifferentiated carcinoma and neuroendocrine carcinoma. A diagnostic approach was thereby decided for all round cell lesions for correct diagnosis. **Conclusions:** It is important to think appropriately regarding the origin of these round cell malignancies by panel of immunohistochemical markers, keeping in mind clinical site, imaging findings and histology using molecular studies as necessary to avoid diagnostic pitfalls

91	**PD-L1 EXPRESSION IN ORAL DYSPLASIA: A PILOT STUDY.**

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Background: Immune checkpoint inhibitor therapy has a recognised role in oral squamous cell carcinoma (OSCC). Assessment of PD-L1 expression by immunohistochemistry by a trained histopathologist is the current standard method of stratifying patient for immunotherapy. However, to date, limited work has been undertaken on PD-L1 expression in oral dysplastic lesions (ODL).

Methods & Objectives: The principal aims of this study were to assess the expression of PD-L1 in ODL and OSCC using a clinically validated, companion diagnostic antibody (Dako 22C3 PharmDx), and to construct a comprehensive clinicopathological database of OSCC and ODL. PD-L1 immunohistochemistry was assessed using the combined positive score (CPS) method by a trained histopathologist. In select cases, CD3 and CD8 expression were also assessed in lymphocytes. Statistical analysis was performed using Fisher's exact and Pearson chi-squared tests.

Results: The majority of OSCC cases tested were positive for PD-L1 using the CPS method (63%; 19/30). PD-L1 expression had a positive association with lymph node metastasis but this was not statistically significant ($p>0.05$). In contrast, a smaller proportion of ODLs were positive for PD-L1 (20%; 4/20), all of which were severely dysplastic. Interestingly, PD-L1 in ODL expression was associated with the presence of a dense chronic inflammatory cell infiltrate.

Conclusions: Evaluating PD-L1 expression using CPS could identify OSCC patients that may respond to immune checkpoint inhibitors. We have observed PD-L1 expression in a small number of severe ODLs, the significance of which is uncertain at present. Replication in larger patient cohorts is recommended for validation.

92	**EXPLORING MICROENVIRONMENTAL ALTERATION ASSOCIATED WITH ORAL SQUAMOUS CELL CARCINOMA IN THE CONTEXT OF ORAL SUBMUCOUS FIBROSIS- SHORT STUDY.**

Mukherjee A, Spadigam A, Dhupar A, Carvalho K. (Oral and Maxillofacial Pathology, Goa Dental College and Hospital, Goa University.)

Background: Oral submucous fibrosis (OSMF) is a potentially malignant disorder dominantly noted in South East Asian countries. A prevalence rate of 0.2–0.5 % has been reported in India, with about 7-13% transforming to Oral squamous cell carcinoma (OSCC). Authors have stated that cases of OSMF-OSCC may have a better prognosis as compared to conventional OSCC, thus recognising the former as a distinct clinico-pathological entity.

Objectives: To explore and understand microenvironmental alterations in cases of OSMF-Oral Epithelial dysplasia (OED) and OSMF-OSCC.

Methods: All cases were staged using the Khanna and Andrade system for OSMF. Epithelial evaluation was achieved using WHO grading for OED and Anneroth's histopathological assessment for OSCC. Stromal evaluation included quantification and qualification of the inflammatory cell infiltrate and a comparison in both groups. Cases of OSMF with OSCC were further subjected to evaluation using Masson's trichrome and immunohistochemistry for CD-105, TGF-β and CD-163.

Results: Cases of OSMF-OED and OSMF-OSCC demonstrated divergent and contrasting stromal features. Based on the demographic and clinical data along with stromal features of OSMF-OSCC, an entity such as concomitant OSMF-OSCC was identified and defined. These cases demonstrated distinct and contrasting stromal alterations, indicative of a relatively poorer prognosis than previously postulated.

Conclusions: The microenvironmental changes, reported herewith are significant owing to their digression from the conventional stroma as is seen and expected to persist in OSMF. The possibility of a better prognosis remains uncertain and the findings of this study warrant further investigation. Thus, a cautious approach must be exercised towards concomitant cases of OSMF-OSCC.

93	**PAROTID CAVERNOUS HEMANGIOMA IN THE ADULT PATIENT WITH SCHÖNLEIN-HENOCH DISEASE**

Musayev JS[a], Gurbanov V[b], Abbasov B[a], Gormez M[c] ([a]Baku Pathology Center. [b]"Beyaz Dis" Private Dental Clinic. [c] Department of Pathology, Faculty of Medicine, Tokat Gaziosmanpasa University. Azerbaijan)

Background: Hemangioma of the parotid gland are very rare and comprise about 0,4-0,6% of all parotid tumors. Most of them occur in children, nevertheless in adults they are very rare. Hemangiomas in the patients with systemic diseases such as systemic lupus erythematosus have been reported in the literature. To the best of our knowledge, association of parotid hemangioma and systemic disease has not been reported. Here, a case of parotid hemangioma in the adult patient with Schönlein-Henoch disease (SHD) was presented because of its rarity.

Case report: 49-years-old female patient was admitted to the dental clinic with complaints of pain and slow growing swelling in the right parotid region. She has been treated with the diagnosis of SHD for nearly 20 years. The Doppler ultrasound showed a heterogenic and hypoechoic nodular lesion in the right parotid gland. T1 hypo and T2 hyperintense, well circumscribed and 27×54 mm sized nodule was seen in the deep lobe of right parotid gland by subsequent magnetic resonance imaging. Fine needle aspiration of the patient was reported as benign cytology, being compatible with vascular lesion. The patient underwent total parotidectomy with prediagnosis of pleomorphic adenoma. The pathological examination of resection specimen was reported as "cavernous hemangioma". Postoperatively, temporary paresis, salivary gland fistula and large-sized hematoma were developed in the patient. Complications were regressed after 3 months with proper treatment.

Conclusion. Hemangiomas can associated with systemic vascular diseases. Although it is common in children, it should also be included in the differential diagnosis of parotid lesions in adults.

94	**GENERAL PROFILE OF THE GINGIVAL LESIONS PRESENTED BY EPULIS: AN ANALYSIS OF 90 CASES.**

Musayev JS[a], Gormez M[b], Hasanov AB[c], Hasanova PA[d] ([a] Baku Pathology Center. [b] Department of Pathology, Faculty of Medicine, Tokat Gaziosmanpasa University. [c] Department of Pathology, Azerbaijan Medical University. [d] Department of Oral and Maxillofacial Surgery, Azerbaijan Medical University)

Background: Epulis is a nonspecific historical term applied to localized enlargement of gingiva. Although gingival enlargement often develops due to simple reactive lesions, sometimes may also be the clinical presentation form of malignant and benign neoplastic lesions.

Objectives and Methods: A total of 90 cases with clinical diagnosis of "epulis" were included in the study. Histopathological findings of the cases were analyzed with demographic and clinical information.

Results: Of the 90 patients, 65 (72,2%) of were female and 25 patients (27,8%) were male. The mean age was 40,13±18,04 years (range, between 6 days and 78 years) and about one third of the cases are discovered in the 5th decade. The most frequent localization was mandibular gingiva with 50 cases compared to the maxillary gingiva. Histopathologically, reactive lesions were detected in the vast majority of the cases and only 11 cases (12,2%) had a neoplastic lesion. Most detected reactive lesion was peripheral giant cell granuloma (38,9%), followed by focal fibrous hyperplasia (35,6%) and pyogenic granuloma (13,3%). Of the 11 neoplastic lesions, 6 benign tumors (2 congenital granular cell tumor, 1 lipoma, 1 osteoma, 1 peripheral developing odontoma and 1 peripheral ossifying fibroma) and 5 malignant tumors (2 Langerhans cell histiocytosis, 1 malignant melanoma, 1 mucoepidermoid carcinoma and 1 osteosarcoma) were diagnosed.

Conclusion: In our study, the neoplastic lesions were detected in the 12,2% of patients and the risk of malignancy was determined as 5.5% in lesions presented by epulis. Histopathological examination is a gold standart for differentiation of such lesions.

95	**INTRAOSSEOUS CAVERNOUS HEMANGIOMA OF THE MANDIBLE: A CASE REPORT**

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Background: Soft tissue hemangiomas are common benign vascular lesions, especially in the first decade of life. However, intraosseous hemangiomas (IH) are very rare and comprise less than 1% of all hemangiomas. The vertebrae and long bones are common localizations for IH. They are rarely seen in the jaw bones and the mandible is affected three times as commonly as the maxilla. Here, a case of IH of mandible was presented because of its rarity and diagnostic difficulty.

Case report: 60-years-old male patient was admitted to the department of head and neck surgery with a complaint of painless swelling in the anterior part of mandible. There were only 4 teeth in the mandible of the patient on physical examination of oral cavity. The patient was evaluated with panoramic radiography. Radiological findings interpreted as irregularly contoured, cystic-lytic lesion in the mandible which provided deformation and swelling in the mental zone. There was no feature in the patient's history. The surgeon decided to mandibular resection, because of cystic-lytic lesion suspicious for malignancy. The pathological examination of resection specimen revealed blood-filled and thin-walled vascular spaces between the bone trabeculae. Focally intravascular papillary formations with fibrous stalks were detected. Mitotic activity, necrosis and atypia were not seen in endothelial and stromal cells. According to pathological findings the case was reported as "intraosseous cavernous hemangioma".

Conclusion. The possibility of IH should be considered by clinicians and pathologists in cystic-lytic lesions of mandible. Histopathology is the gold standard for excluding of malignant lesions and for correct diagnosis.

96	**ERp57 EXPRESSION IN LOCALLY ADVANCED LARYNGEAL SQUAMOUS CELL CARCINOMA AND THEIR RELATION WITH CLINICO-PATHOLOGICAL PARAMETERS**

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Background: Currently there are no predictive biomarkers which could help to guide therapeutic protocols for laryngeal squamous cell carcinoma (LSCC). ERp57 has been recently associated with aggressive biological behavior of some cancers.

Objectives: To explore ERp57 expression on advanced LSCC and assess whether there is a relationship with clinical-pathological parameters.

Methods: Analytical cross-sectional study (CMNO-IMSS R-2018-1301-47 and UdeG-CUCS CI-00819, institutional review board registers) on adult patients with LSCC, selected by a consecutive non-probabilistic sampling. 25 cases of stage III and IV LSCC over a 2010-2016 period were retrieved. Clinicopathological data were collected (gender, age, laryngeal site, smoking history, and treatment modality). ERp57 immunohistochemistry was performed on histological sections and the expression was subjectively evaluated by three specialists in an independent, calibrated, and blind manner.

Results: 94% of the cases were men, with an average age of 60 (SD ± 10 years). The transglottic extension was the most frequent presentation (80%), and 4, 14 and 7 cases were well, moderately and poorly differentiated, respectively. 10 cases presented an intense/high smoking index. ERp57 was positive in 21 cases (12+, 5++. 4+++); however, no correlation was identified with clinical or pathological variables analyzed and ERp57 level expression (Chi square and Fischer's exact tests).

Conclusions: Although no association could be identified in this study, there is evidence in the literature that supports ERp57 as a potential biomarker. The number of cases in this work should be increased, in order to either establish an accurate relationship or discount one

97	**AGING AND ORAL CANCER DEVELOPMENT**

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Background: Cell aging or cellular senescence is a potent anti-tumour response characterized by an irreversible cell growth arrest. Paradoxically, aging is considered a risk factor for the development of cancer, with compelling evidence of senescent cells acting as cancer promoters. Senescent cells remain metabolically active and adopt a pro-inflammatory phenotype known as the SASP, characterized by the secretion of different factors which includes IL-6 and IL-8, two well-known cancer associated cytokines.

Objectives: To study the senescence response of normal (NOKs) and dysplastic (OD) oral keratinocytes and to explore pharmacological ways to reduce its potential oncogenic effects.

Methods: Primary normal and dysplastic keratinocytes were grown till senescence was achieved and changes in gene and protein expression were analysed. Senescent cells were treated with two different drugs (a Rho kinase and cGAS inhibitor) to explore possible ways to modify the SASP. To understand mechanisms regulating senescence, OD cells were genetically modified using the CRISPR/Cas9 system.

Results: Senescent NOKs and ODs develop a SASP characterized by a significant increase of IL-1α, IL-1β, IL-6 and IL-8, which is accompanied by a decrease in the IL-1 receptor antagonist (IL-1RA). Rock inhibitors are successful in reducing cytokine secretion by senescent cells, whereas cGAS inhibitors can only do it partially. Knock out of IL-1RA suggests that IL-1RA has important functions in the regulation of senescence.

Conclusion: Our study shows that senescent oral keratinocytes adopt a pro-inflammatory state, rich in cytokines known to have oncogenic effects, which can be pharmacologically modified without affecting the senescence response.

98	**SYNCHRONICITY OF ORAL LICUEN PLANUS AND MUCOEPIDERMOID CARCINOMA OF MINOR SALIVAL GLAND. CASE REPORT.**

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Background: Oral lichen planus (OLP) is a disease of unknown origin, although its etiology associated with immune disorders is favored; of difficult control and distinctive clinical characteristics that mainly affect vestibular mucosa among other oral mucosa sites. On the other hand, mucoepidermoid carcinoma (MC) is the most common malignant neoplasm of minor salivary glands, appearing mainly on the palate. In labial mucosa it can appear as nodules of slow growth, asymptomatic and with blue coloration. A case is reported where both entities are diagnosed in the same patient.

Case Presentation: Female 53 years old; presented reticular lesions and white plaques with erosive areas distributed in almost all oral mucosa and vermilion borders, 1 year of evolution and have worsened over time without diminishing over various treatments. On examination, a mobile firm nodule, 1.0 cm in diameter, is distinguished in the submucosal aspect of lower left labial mucosa. Upon interrogation, the patient referred a surgical procedure a year and a half ago without obtaining a histopathological diagnosis. Biopsies are indicated in both processes. OLP and CM of the labial lesion are corroborated under microscope. Treatment with topical steroids and monitoring of the surgical site of labial mucosa is indicated. After one-year follow-up, there is LPO control and no recurrences of CM.

Conclusions: The importance of extra and intraoral examination is based on the various clinical diagnoses found in patients, since they can be unique, multiple, and the latter independent or dependent on each other with better treatment and prognosis opportunities.

99	**CLINICOPATHOLOGIC PROFILE OF ORAL SQUAMOUS CELL CARCINOMA (OSCC) AND SINONASAL SQUAMOUS CELL CARCINOMA (SNSCC).** Olajide M, Ladeji A, Adebiyi K, Abah A. (Department of Oral Pathology and Oral Medicine, Lagos State University College of Medicine, Ikeja, Nigeria.) **Background:** Oral Squamous Cell Carcinoma is said to be the most common malignancy affecting the oral cavity while Squamous cell carcinoma of the sinonasal tract is less common. Changing patterns have been observed in the incidence of these lesions in recent years. **Objective:** This study aims to determine the demographics, clinical and histopathologic characteristics of Oral Squamous Cell carcinoma and Sinonasal Squamous Cell Carcinoma in a Nigerian (African) population over a period of 7 years (2013 to 2019). **Materials and Methods**: In this retrospective study, records from the archives of the Oral Pathology laboratory, Faculty of Dentistry, Lagos State University College of Medicine over a period of 7 years (2013 to 2019) were reviewed to retrieve the age, sex, site, grade and variant (where indicated) of cases. Data was analyzed using SPSS (version 20). **Results**: The prevalence of OSCC in our study was 34.5% of all oral and maxillofacial malignancies, while SNSCC accounted for 5.5%. Mean age for OSCC was 56.5(SD±16.4) years, while that of SNSCC was 47.0 (SD±9.23) years. These lesions were more frequent in males (63.2% and 66.7% for OSCC and SNSCC respectively) than females. The most common site of involvement in OSCC was the tongue (28.9%). 66.7% of the SNSCC was the Keratinising type. 75% of Keratinising SNSCC and 55.3% of OSCC were graded moderately differentiated. **Conclusion:** Incidence and distribution of these lesions in the light of new adaptations of cultural practices will help to identify existent patterns for diagnosis in Africans.

100	**SYNCHRONOUS MALIGNANT GRANULAR CELL TUMOURS OF THE RIGHT RETROMOLAR TRIGONE AND LEFT PAROTID GLAND: A CASE REPORT**

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Introduction: Granular cell tumours (GCTs) are uncommon, benign mesenchymal neoplasms of Schwann cell origin. In the head and neck, the tongue is the most common site. Malignant tumours comprise about 2% of all granular cell tumours. Herein, we report a case of a malignant granular cell tumour (MGCT) in the right retromolar trigone and a synchronous tumour in the left parotid gland. The literature suggests this may be the second case of a malignant granular cell tumour described in the oral cavity.

Case Report: A 51 year old male presented to the Otorhinolaryngology Clinic for a progressively enlarging right retromolar trigone lesion, extending to the buccal mucosa, floor of mouth and posteriorly to the tonsil. Extra-orally a left parotid swelling, right sided lymphadenopathy and cranial nerve fallout of V1, V2, III and VI were noted. Computer Tomography showed a homogeneously enhancing soft tissue mass in the right oral cavity extending intracranially, as well as a mass in the left parotid. Histopathological examination revealed synchronous MGCTs. The tumours were deemed inoperable and the patient was offered palliative radiotherapy.

Discussion: MGCTs are rare high-grade malignant mesenchymal tumours representing only 1-2% of all GCTs. MGCTs commonly affect the thigh, extremity and trunk, however involvement of the oral cavity is rare. The prognosis is poor with 39% mortality rate in 3-year interval.

Conclusion: Although malignant granular cell tumours are rare, clinicians and histopathologists must be familiar with this entity. However, distinction between benign and malignant can be difficult due to striking histological similarities.

101	**IDENTIFICATION AND STUDY OF PROGNOSTIC BIOMARKERS IN A COHORT OF EARLY STAGE ORAL SQUAMOUS CELL CARCINOMA PATIENTS FROM ARMENIA**

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Background: Oral squamous cell carcinoma (OSCC), is the 6-th leading malignancy of worldwide estimated· The OSCC incidence has increased in recent years. Tumor – associated macrophages (TAMs) have been shown to promote tumor progression by influencing tumor invasion, migration, and angiogenesis. So far no study investigating of different biomarkers on cohorts of OSCC patients from Armenia has been published.

Aim: The aim of this study was to evaluate the role of TAMs in the prognosis of OSCC. In the same time investigate the association between the expression of Ki67 and p53 biomarkers and its relation with clinicopathological parameters (tumor stage and grade) in a cohort of OSCC patients from Armenia.

Methods: Available samples from patients diagnosed with OSCC in 2017/2018 were collected from Armenian Hospitals after ethical approval (n=13). Immunohistochemistry (IHC) was performed using Visualization System and EnVision™ Double stain System (DAKO) for: Ki67, p53 and CD163/CD68 biomarkers. Stained tissues were scanned and quantified by Image Scope software (Aperio Technologies Inc.) and QuPath v0.2.0-m9 (OSS for DPI analysis**).** Data was analyzed using SPSS 25.0 program.

Results: Intense nuclear expression of p53 was identified in 69.2% cases but not strongly correlated with high proliferation index (>50% Ki67 positive cells), p=0.125, and M2 type macrophages expression, p=0.308. In contrast M2 type macrophages count was correlated with the tumor stage, p=0.026.

Conclusion: This preliminary study identified a positive correlation between increased expression of M2 type macrophages and the stage of the OSCC. This should be further investigated in a larger cohort of patients.

102	**SALIVARY PROTEOME PROFILING IN ORAL SUBMUCOUS FIBROSIS AND ORAL CANCER**

Patankar SR, Gokul S, Choudhary S, Kamble P (Oral Pathology, Dr. G. D. Pol Foundation's Y. M. T. Dental College & Hospital – Navi Mumbai, India, Maharashtra University of Health Sciences)

Background: Proteomics, which focuses on evaluating a range of proteins, has emerged as one of the main analytical strategies in cancer research. A number of proteins may show alteration in oral cancer and high-risk potentially malignant disorders such as oral submucous fibrosis. Salivary diagnostics has received increasing importance owing to its ease of collection, proximity to the lesion and efficient analysis of different proteins and peptides present in saliva.

Objectives: (1) To evaluate the salivary proteomic profile in healthy controls, oral submucous fibrosis and oral squamous cell carcinoma. (2) To compare the differential regulation of proteins among the three groups.

Methodology: Saliva samples were collected from the study participants using standard protocol. The samples were processed and proteomic analysis was performed using Orbitrap High Performance Liquid Chromatography Mass Spectrometry. Data analysis of the altered proteins was done using Thermo Proteome Discoverer 2.2. uniprot-Homosapiens was the database used for the identification and comparison of proteins. Further, differentially regulated proteins in oral submucous fibrosis and oral squamous cell carcinoma were evaluated.

Results: The proteins that were upregulated in the diseased group included alpha 1 antitrypsin, S-100 protein, histone and adenylyl cyclase associated proteins. Downregulated proteins included Glucose-6-phosphate 1-dehydrogenase, statherin, calponin, lactoferrin, small proline rich protein and interleukin-1 receptor antagonist protein.

Conclusions: Differentially regulated proteins may serve as potential biomarkers in early diagnosis of oral cancer and in understanding the behaviour of oral potentially malignant disorders.

103	**A RARE CASE OF EXTRASKELETAL EWING'S SARCOMA TUMOUR DEVELOPING IN AN UNCOMMON LOCATION – FLOOR OF THE MOUTH**

Patel J[a], Cristina F[a], Amandeep M[a], Anand K[a] ([a] Royal Derby Hospital)

Introduction: Ewing's sarcomas (ES) are uncommon malignant neoplasms that usually arise in long bones in young adults. They represent a family of high-grade tumours characterised by small round cells and includes ES of bone and peripheral primitive neuroectodermal tumour (PNET). ES are poorly differentiated and may arise in bones or soft tissues; PNETs tend to arise in soft tissues. Extraskeletal ES (EES) are very rare, particularly in the head and neck. Neo-adjuvant chemotherapy improves survival; however, surgery remains an important treatment option.

Case Description: A 43-year-old Caucasian male presented with an otherwise asymptomatic slow growing lump in the right submandibular/sublingual area. An MRI scan confirmed the presence of a large mass above mylohyoid, with suspicious characteristics. A fine needle aspiration (FNA) biopsy of the mass was suggestive of EES. The patient was discussed in the head and neck and regional sarcoma MDTs. A larger sample was requested for further analysis, which confirmed the diagnosis. The patient started treatment with neo-adjuvant chemotherapy and might require surgery at a later date.

Discussion: This case highlights the challenges faced when dealing with rare tumours: when is it reasonable to suspect malignancy in the lack of sinister symptoms? What technique offers appropriate diagnostic samples without compromising future resection? What tests allow prompt diagnosis? What management regime is indicated when specific data is lacking? We believe such cases must be reported, to add to the knowledge of the scientific community, so that in the future the optimal management can be offered in these challenging circumstances.

104	**HEAD (AND NECK) IN THE CLOUDS: RE-IMAGINING ROYAL COLLEGE CANCER DATASETS IN A "WORDCLOUD" FORMAT**

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Background: Royal College cancer datasets ideally should present the pathologist not only with lists of core data items for histopathological reporting of cancers, but also communicate the strengths and limitations of the evidence behind those core items. Within the confines of a text- or proforma-based representation, there is little scope for interaction with, or encouragement of scrutiny of the evidence base by the pathologist.

Objective: Wordclouds can be used to represent textual data in a visual format, highlighting frequency and defined categories of items. We wanted to explore whether the core data items in cancer datasets could be recreated in a more visual and interactive format, using a "wordcloud" approach.

Methods: Using the 2013 dataset for histopathology reporting of mucosal malignancies of the pharynx as a test case, we extracted the evidence base cited within the document for a subset of the core data items and updated the evidence by systematic review of the literature from year of publication to present.

Results: We created an HTML-based wordcloud "within" a head and neck sagittal section shape outline, that represents i.) each core data item, ii.) the strength of evidence (text size), iii.) whether that evidence is direct or inferred (text colour), and iv.) hyperlinks from each core data item to text-based information for that item and relevant publications from the evidence base.

Conclusions: We believe the dataset wordcloud might enable easier navigation and clarity of the core data items, and better understanding and scrutiny of the evidence base behind them.

105	**RECURRENT APHTHOUS STOMATITIS ASSOCIATED WITH MYELODYSPLASTIC SYNDROME: A CASE REPORT**

Peng DS[a], Chiang ML[b], ([a] General Dentistry, Taoyuan Chang Gung Memorial Hospital. [b] Oral Pathology and Oral Diagnosis, Taipei Chang Gung Memorial Hospital.)

Aim: The aim of this report is to present the proceed of diagnosis and management of a patient with myelodysplastic syndrome afflicted with recurrent aphthous stomatitis (RAS).

Background: RAS is one of the most common lesions of the oral mucosa seen in adolescents. Although the exact etiology of RAS is still unknown, different hematinic deficiencies have been proposed.

Case report: A 71-year-old male with multi-comorbidity was suffered from frequent oral ulcerations for many years. Hematologic investigation showed normal iron serum concentration, and higher folate level. Besides, his serum zinc concentration was lower. Despite his vitamin B12 level was normal, his homocysteine level was slightly higher. Furthermore, his RBC, hemoglobin and hematocrit were lower, and MCV, MCH and RDW were higher, which were related to megaloblastic anemia.

Treatment with prednisolone, zinc gluconate, hydroxocobalamin and nystatin led to rapid improvement. Nevertheless, fluctuations in the state of his RAS within 6 months. Hence, we consulted division of hematology and oncology (ONC) for further evaluation. The ONC doctor arranged blood test and bone marrow biopsy and prescribed ferrous gluconate-B to him. The report of bone marrow biopsy showed myelodysplastic syndrome (MDS), refractory cytopenia with multilineage dysplasia (RCMD) and iron store deficiency. After iron supplement, his recovery rate well-elevated.

Clinical implication: When patients have RAS, consider checking iron, vitamin B12 and folate levels and treating patients if levels are low. Such treatment could reduce some varieties of RAS. However, if patients with hematological diseases, the further test, such like bone marrow biopsy may be needed.

106	**RECURRENT APHTHOUS STOMATITIS ASSOCIATED WITH MACROCYTIC ANEMIA: A CASE REPORT** Peng DS. (Department of Pediatric Dentistry, Taipei Chang Gung Memorial Hospital. Taiwan) **Aim:** The aim of this report is to present the proceed of diagnosis and management of a patient with macrocytic anemia afflicted with recurrent aphthous stomatitis (RAS). **Background:** RAS is one of the most common lesions of the oral mucosa seen in adolescents. Although the exact etiology of RAS is still unknown, different hematinic deficiencies have been proposed. **Case report:** A 71-year-old male with multi-comorbidity was suffered from frequent oral ulcerations for many years. Hematologic investigation showed normal iron serum concentration, and higher folate level. Besides, his serum zinc concentration was lower. Despite his vitamin B12 level was normal, his homocysteine level was slightly higher. Furthermore, his RBC, hemoglobin and hematocrit were lower, and MCV, MCH and RDW were higher, which were related to megaloblastic anemia. Treatment with prednisolone, zinc gluconate, hydroxocobalamin and nystatin led to rapid improvement. Nevertheless, fluctuations in the state of his RAS within 6 months. Hence, we consulted division of hematology and oncology (ONC) for further evaluation. The ONC doctor arranged blood test and bone marrow biopsy, and prescribed ferrous gluconate-B to him. The report of bone marrow biopsy showed myelodysplastic syndrome (MDS), refractory cytopenia with multilineage dysplasia (RCMD) and iron store deficiency. After iron supplement, his recovery rate well-elevated. **Clinical implication**: When patients have RAS, consider checking iron, vitamin B12 and folate levels and treating patients if levels are low. Such treatment could reduce some varieties of RAS. However, if patients with hematological diseases, the further test, such like bone marrow biopsy may be needed.

107

PREVALENCE OF MALIGNANT NEOPLASMS IN 2,042 CONSECUTIVE CASES IN A PRIVATE SERVICE IN MEXICO

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Background: Malignant neoplasms in oral cavity represent 3% to 5% of all the neoplasms where squamous cell carcinoma is the most frequent with a representation rate of 90%

Objectives: To identify the frequency of malignant neoplasms diagnosed histopathologically in 2,042 consecutive cases in the oral cavity in a private oral pathology service, classifying them by age, sex and location.

Methods: Cross-sectional study of a sampling for convenience from the periods of January 2017 to December 2018

Results: The prevalence of malignant neoplasms was 6.06% (124/2042)

Type	N (%)	Age	Sex	Localization
Squamous cell carcinoma	68 (3.33%)	53	Male	Lateral tongue
Lymphoma	17 (0.83%)	46	Male	Palate & alveolar ridge
Salivary tumours:				
Adenocarcinoma (NOS)	9 (0.44%)	62	Female	Palate
Mucoepidermoid carcinoma	6 (0.29%)	49	Female	Palate
Adenoid cystic carcinoma	2 (0.09%)	54	Female	Palate
Myoepithelial carcinoma	2 (0.09%)	75	Male	Jaw
Biphasic salivary gland carcinoma	1 (0.04%)	20	Female	Palate
Salivary ductal carcinoma	1 (0.04%)	84	Male	Palate
Verrucous carcinoma	5 (0.24%)	67	Female	Gum
Basal cell carcinoma	5 (0.24%)	60	Female	Wing nose
Osteosarcoma	5 (0.24%)	30	Female	Jaw
Melanoma	1 (0.04%)	31	Male	Jaw
Ameloblastic carcinoma	1 (0.04%)	54	Male	Jaw
Malignant tumor of peripheral nerve sheath	1 (0.04%)	50	Female	Maxillary

Conclusions: Malignant neoplasms mainly affect people over 40; in this study the male sex is the most affected, probably because women attend medical evaluations more frequently and injuries are detected at earlier stages.

108	**PLASMA CELL CHEILITIS: REPORT OF TWO CASES FROM BRAZIL**

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Background: Plasma cell cheilitis (PCC) is an uncommon idiopathic condition that usually affects the lower lip as a circumscribed, slightly raised eroded plaques or patches, occasionally showing bleeding and crusted areas.

Objectives: To present two cases of PCC affecting the lower lip of adults

Case report: An 86-year-old woman was referred with a main complaint of burning sensation in her lower lip, particularly during ingestion of spicy food. Her medical history revealed high cholesterol and hypothyroidism while an ill-defined white plaque of unknown duration was observed in the semi-mucosa of lower lip. Second patient was a 58-year-old male presenting a well-defined erythematous ulcer with whitish smooth margins affecting almost the entire vermilion of the lower lip.

Results: Both cases were submitted to incisional biopsies under diagnostic hypothesis of actinic cheilitis. Microscopical analyses revealed hyperplastic and parakeratinized stratified squamous epithelium with dense infiltrate of plasma cells in the lamina propria.

Conclusion: The final diagnosis was of PCC. Patients were treated with topical corticoid and laser therapy with regression of signs and symptoms. PCC should be considered when evaluating cheilitis, particularly those with plasma cell infiltration.

109	**CYSTADENOMA OF THE PALATE: A RARE SITE FOR A RARE ENTITY**

Perks AC[1], Martin K[2], Domah F[2], Bates T[3], Anstey H[2] ([1]Oral Medicine, Birmingham Dental Hospital, [2]Oral Surgery, Birmingham Dental Hospital, [3]Oral Pathology, Queen Elizabeth Hospital, Birmingham, UK)

Background: Salivary gland cystadenomas are rare, benign, epithelial tumours. They are typically characterised by multicystic growth, and often contain intraluminal papillary projections. Most cases present in the parotid gland or minor salivary glands of the lips or buccal mucosa.

Case: A 78-year-old female presented with a 3-month history of an asymptomatic palatal swelling. Clinical examination revealed a 6mm raised, nodular, soft, sessile lesion on the left hard palate. Differential diagnoses included mucocele or salivary gland tumour.

An excisional biopsy was performed which demonstrated a benign cystic structure with a complex multilocular architecture and morphology of the epithelial lining. Intermittently, a double-layered arrangement of the epithelium was seen with occasional papillary projections, apocrine and mucous cells. A patchy chronic inflammatory infiltrate was also noted.

The histopathology was most in keeping with a cystadenoma with lesional cystic spaces extending focally to the deep margin of the specimen. Following discussion at a clinico-pathological conference, the clinical consensus was for surveillance rather than re-excision due to low recurrence rate of these tumours.

Conclusions: Cystadenomas in palatal minor salivary glands are rare. They do not possess any distinct clinical features, and can mimic simple mucous retention cysts, such as in our case; therefore, histopathological confirmation is paramount. Oncocytic change is commonly seen, therefore histological differential diagnosis can include Warthin's tumour. Malignant salivary tumours (e.g. low-grade mucoepidermoid carcinoma, adenocarcinoma, NOS, intraductal carcinoma and mucinous cystadenocarcinoma) should also be ruled out. Treatment with conservative local excision is usually curative.

110	**AN UNUSUAL PRESENTATION OF CLASSIC KAPOSI SARCOMA IN THE PAROTID GLAND – A CASE REPORT AND REVIEW OF THE LITERATURE**

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Introduction: Kaposi sarcoma (KS) is an intermediate-type, locally aggressive and rarely metastasising, vascular neoplasm associated with human herpes virus 8 (HHV-8) infection. There are four distinct clinico-epidermiological subtypes; with iatrogenic and AIDS-associated types related to immunosuppression. The classic subtype of KS, seen in immunocompetent men of typically Mediterranean/East European descent, is uncommon. KS is often multifocal and affects the skin, mucous membranes, lymph nodes and visceral organs in decreasing order of frequency. Major salivary gland involvement is exceptionally rare; with fewer than 10 case reports identified following literature review. We describe an unusual presentation of classic KS arising in the parotid gland of an 83-year-old male patient**.**

Case details: The patient presented with a 7-month history of a slow-growing lump in the left cheek. Ultrasound and MR imaging revealed a 16mm lesion within the superficial lobe of the parotid gland suggestive of a primary salivary gland neoplasm. Fine-needle aspiration was non-diagnostic; therefore, core biopsy was performed. This revealed a vascular lesion composed of tightly-packed capillaries and sieve-like spaces lined by endothelial cells which demonstrated strong HHV8 positivity by immunohistochemistry. HIV infection was excluded and following clinical examination, imaging and haematological screening neither any other soft tissue/cutaneous lesions nor evidence of immunodeficiency was identified. Treatment with radiotherapy is planned following MDM discussion.

Conclusions: KS is rarely reported in the parotid gland with most classic types limited to the skin. Classic KS has the best prognosis and is often indolent, with either surgery or radiotherapy recommended for localised disease.

111	**INTRA-OPERATIVE ASSESSMENT OF RESECTION MARGINS BASED ON RAMAN SPECTROSCOPY IN OCSCC SURGERY**.

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Background: In head and neck oncological surgery the goal is to achieve a complete tumor resection with acceptable remaining function and appearance. For oral cavity squamous cell carcinoma (OCSCC) only 15% of the resections are reported as adequate. Since 2013, we perform intra-operative assessment of resection margins (IOARM) in our institute, based on palpation and visual inspection of the resected specimens by pathologist and surgeon. This has resulted in an improvement of adequate resection margins from 15% to 50%, underlining the importance of IOARM. However, this method is subjective, labor intensive and logistically challenging.

Objective: Our aim is to develop an objective method for fast and reliable IOARM based on Raman spectroscopy (RS).

Methods: RS is a non-destructive objective optical technique that provides information about the molecular composition of tissues. It can discriminate between healthy tissue and tumor.

We developed a prototype Raman instrument employing a fiber optic-needle probe. The fiber-optic needle is driven into the OCSCC specimen, from the resection surface towards the tumor. Based on the Raman spectra collected along the insertion path, the location of the tumor border can be determined. From this the resection margin can be determined.

Results: First tests of the method show that instrument accurately predicts the achieved resection margins. Per location the measurement and assessment takes 5s.

Conclusion: This development signifies an important step towards a fast and objective IOARM. The fast measurement time enables an objective inspection of the margins achieved at a large number of locations of the resection surface.

112	**METHYLATION PROFILING OF *DAPK1, LRPPRC, RAB6C, & ZNF471* IN SALIVA AND TISSUES AS NOVEL EPIGENETIC MARKERS OF ORAL SQUAMOUS CELL CARCINOMA**

Radhakrishnan R[a, c], Kudva A[b], Kabekkodu SP[c] , Chakrabarty S[c], Mallya SP[c], Satyamoorthy K[c] ([a] Oral Pathology and [b]Oral and Maxillofacial Surgery, Manipal College of Dental Sciences, Manipal Academy of Higher Education; [c]Cell and Molecular Biology, Manipal School of Life Sciences, Manipal Academy of Higher Education, Manipal)

Background: Despite rapid progress in the diagnosis and treatment of oral squamous cell carcinoma (OSCC), the survival rates remains poor. Early identification of premalignant lesions is critical in reducing mortality. Epigenetic changes, such as aberrant DNA methylation resulting in altered gene expression contributes to oral carcinogenesis.

Objectives: To identify aberrantly methylated genes in saliva and tissue of OSCC patients as novel biomarkers of patient's prognosis

Methodology: Genome-wide methylation changes were identified by differential methylation hybridization (DMH) microarray. The results were compared against datasets from TCGA-HNSCC. Promoter sequence of *DAPK1*, *LRPPRC*, *RAB6C*, and *ZNF471* were validated by bisulfite genome sequencing (BGS). The methylation status of these genes were tested in saliva and tissue specimens by targeted next-generation sequence (TNGS).

Results. Promoter sequence of *DAPK1, LRPPRC, RAB6C,* and *ZNF471* were significantly hypermethylated in tumour compared with matched normal tissue ($P < 0.0001$). Sensitivity and specificity of methylation markers for detection of OSCC were in the range of 70–100%, with AUC 0.83 and above. Salivary DNA methylation levels were higher in premalignant lesions and OSCC in comparison to healthy controls ($p<0.05$). The r-value between premalignant tissue *vs* saliva and OSCC *vs* saliva were in the range of 0.6297 to 0.8023 and 0.7823 to 0.9419 respectively.

Conclusion: Our data confirms that the methylation pattern of these candidate genes are significantly higher in premalignant and OSCC tissues and saliva. Thus, the methylation profiling of these candidate genes has the potential to serve as novel non-invasive markers of OSCC.

113	**OLFACTORY NEUROBLASTOMA: A CASE SERIES FROM A SINGLE INSTITUTION.** Radia P[1], Piper K[1], Suchak K[1], Cottom H[1]. ([1] Department of Cellular Pathology, The Royal London Hospital, Barts Health NHS Trust, London, UK). **Introduction:** Olfactory neuroblastoma (ONB) is an uncommon malignant neuroectodermal sinonasal tumour which comprises approximately 2-3% of all sinonasal tumours. These tumours originate from specialised sensory neuroepithelial/neuroectodermal olfactory cells; and occur most frequently in the upper nasal cavity, in the region of the cribriform plate. All age groups are affected and patients often present with locally advanced disease resulting from delay in presentation. This attributed to the slow-growth by tumours and non-specific symptomatology. **Objective**: To evaluate the histological features and management outcomes for patients with ONB at our institution. **Results:** Over a 10-year period (2009-2019) 6 patients were identified with ONB. The majority of tumours (n=4) were locally advanced at the time of presentation with extension beyond the nasal cavity and paranasal sinuses (Kadish stage C). One tumour was stage B and one was stage A. Three tumours were Hyams grade I, two tumours were grade II and one tumour was grade III. One grade I tumour demonstrated ganglioneuromatous differentiation. Glandular differentiation was seen in one grade II ONB. All patients had surgical resection, with three patients receiving post-operative radiotherapy. One patient was found to have multiple bony and left cervical metastases by cross-sectional staging imaging and therefore received post-operative chemotherapy. All patients are alive with 4 patients free from disease (follow-up period ranging from 1 - 108 months). **Conclusion:** At our centre patients typically presented with advanced disease with most patients receiving multimodality treatment comprising surgery and radiotherapy. All patients are alive with only one patient with disseminated disease.

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DENTAL ANXIETY CAUSING DELAYED PRESENTATION OF BENIGN PATHOLOGY

Rahma S, Kamaraldin L, Aristotelous C, Sisson R (Norfolk and Norwich University Hospital, Norwich, UK)

Background: Peripheral ossifying fibroma is a benign gingival nodule which is composed of a cellular fibroblastic connective tissue stroma with randomly dispersed foci of mineralised products, which consists of bone, cementum-like tissue, or a dystrophic calcification. It is usually cause by local irritation. It can be sessile or pedunculated with the size usually being less than 2cm.

Case report: A 60-year-old female was referred to the Oral and Maxillofacial department on the 2 week-wait cancer pathway with regards to a large lump in the upper right quadrant. Patient reported the lesion had been present for over 5 years but recently started causing facial asymmetry and eating difficulties. She did not seek any advice previously due to severe dental anxiety. Examination revealed a large 3.5x3cm erythematous and ulcerated pedunculated lesion in the posterior upper right quadrant.

Results: Surgical excision of the large growth in the upper right quadrant was performed under general anaesthetic. Histopathology demonstrated a polypoid bony lesion showing extensive secondary changes with overlying ulceration, granulation tissue and fibrosis. Diagnosis of peripheral ossifying fibroma was made.

Conclusions: Late presentation of benign intraoral lumps is more common in developing countries due to lack of access, however, this case demonstrates that in developed countries severe dental anxiety can be a barrier in seeking early medical advice. It also demonstrates the possibility that late presenting benign lesions may present with atypical characteristics, mimicking that of malignant lesions, with histopathology being vital for diagnosis.

115	**INCIDENCE OF ORAL DYSPLASIA AND FOCAL INVASION FOLLOWING EXCISION**

Rahma S, Maharaj K, Sisson R (Norfolk and Norwich University Hospital, Norwich, UK)

Background: Dysplasia is defined as the presence of cells of an abnormal type within any tissue, which may signify a stage preceding the development of cancer. It can be categorised into Mild/Moderate/Severe and Carcinoma in-situ.

Objectives: To determine the incidence of oral dysplasia and the incidence of focal invasion following surgical excision of severe dysplasia and carcinoma in-situ.

Methods: Histopathology reports for all patients diagnosed with dysplasia of the oral cavity at the Norfolk and Norwich University Hospital (NNUH) between the periods of May 2017 – May 2019 were analysed. Data on site of lesion, grade of dysplasia and presence of focal invasion were recorded.

Results: A total of 130 patients had 150 biopsies with a diagnosis of dysplasia. Eighty-two had Mild (55%), 27 moderate (18%) and 41 with Severe or Carcinoma in-situ (27%). Patients with a diagnosis of Severe dysplasia or Carcinoma in-situ (n=41) had excision of the lesion, of which 9 (21.9%) showed focal invasion, changing their diagnosis to oral squamous cell carcinoma. Of these, 3 underwent further surgery following our local Multi-disciplinary team meeting.

Conclusions: Histopathology is essential in the management of these cases, as it defines the treatment modality required. If Invasion is identified on histopathological examination following excision, further excision may be required to deem procedure as curative and reduce risk of recurrence. Hence all patients with a diagnosis of Carcinoma in-situ should be told of the risk of invasion and need for further surgery.

116	**THE CHALLENGING DIAGNOSIS OF SERONEGATIVE ORAL SYPHILIS IN AN HIV-INFECTED PATIENT.**

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Background: In people living with HIV/syphilis-coinfection, overlapping of clinical stages and misleading anti-treponemal serologic tests have been described. This is the report of a serological (false-negative) non-reactive, PCR-confirmed, syphilis in an HIV-infected patient.

Case description. HIV-infected male, 28-year-old, receiving antiretrovirals (TDF/FTC/DTG) with therapeutic success (CD4:667cells/mm3, undetectable HIV-plasma viral load), referred to our Oral Pathology & Medicine Service in Mexico City. A three-month asymptomatic ulcerated lesion on the right-side of the soft palate and anterior pillar, with granular appearance, irregular borders, measuring 2-3 cm in diameter was observed. A painless, right cervical lymph node was present. A quantitative serum Venereal Disease Research Laboratory (VDRL) assay was nonreactive (serum was diluted 6-fold to rule out a prozone phenomenon and remained negative). Histopathological analysis revealed an intense mixed inflammatory infiltrate, differential diagnosis included secondary syphilis, lymphoproliferative disorder, and deep mycotic infection. The immunohistochemistry (IHC) for *T. pallidum* was negative. DNA extraction was performed and the *T. pallidum* gene polA was amplified by PCR; as a consequence, the patient received benzathine-penicillin G (2.4 million units) single dose. VDRL and treponemal FTA-abs were done twice, with negative results. A new biopsy revealed positive IHC-*T. pallidum*. Two months later, a mucous patch appeared on the tonsillar pillar, with histopathological features of secondary syphilis, and positivity for IHC-*T. pallidum*. VDRL and FTA-abs assays remained non-reactive. Oral lesions resolved after 3 doses of benzathine-penicillin G.

Conclusion. In absence of serological evidence, the diagnosis of oral syphilis is a challenge. PCR and IHC may represent supplementary helpful diagnostic tools.

117	**FUNCTIONAL APPRAISAL OF ORAL MICROBES IN OSCC PROGRESSION: A SYSTEMATIC REVIEW AND META-ANALYSIS** Ray M[1], Sarkar S[1], Sahoo JR[2], Routray S[1] **([1]**All India Institute of Medical Sciences, Bhubaneswar, India; [2]IMS & SUM Hospital, Bhubaneswar, India) **Background:** Oral squamous cell carcinoma (OSCC) is the most common malignancy, representing up to 80-90% of all malignant neoplasm of oral cavity. The role of microbes in association with the host is known to promote cancer progression, which is considered as prominent risk factor for oral OSCC. In view of a recent systematic review on microbial involvement, a proficient conclusion was derived associating of microbes in OSCC progression. **Objective:** Identification of most relevant microbial species association in OSCC progression using statistical meta-analysis. **Methods:** A preliminary search was primed through different literature databases including PubMed, Embase, and Cochrane for a systematic review by using different MeSH terminologies on microbial association in OSCC progression. A meta-analysis was done to identify statistically significant bacterial species. **Results:** Results of this analysis presented the forest plots with statistically evaluated odd ratios and confidence intervals for each considered bacterial concentration. According to the results no single or clustered microbial entity evaluated could confirm its significant association with OSCC progression. This could be due to lack of qualitative and quantitative data and needs extensive evaluation using throughput research techniques. **Conclusion:** The observations on the bacterial risk factors of OSCC through meta-analysis have been concluded with the identification of statistically insignificant association of microbes with OSCC progression. But, among those possibly consistent species, *Prevotella melaninogenica* might play a sensitive role in propagating OSCC progression.

118	**INTRAOSSEOUS EPITHELIOID HAEMANGIOENDOTHELIOMA OF THE MANDIBLE**

Rizvi A[a], Blackburn T[b], Betts G[b] ([a]James Cook University Hospital, [b]Manchester Foundation Trust)

Case: A fit and well, 25-year-old man presented with worsening pain and bony swelling on the lingual aspect of the right premolar region. Radiology showed a multiloculated radiolucent lesion of the anterior mandible with bone expansion and displacement of roots.

Initial biopsy revealed fragments of nested epithelioid tumour within the marrow space with extravasated red blood cells and hemosiderin suggestive of vascular origin. Further biopsy showed histological features of eHAE. Samples were sent to the National Orthopaedic Hospital for molecular testing but this was inconclusive, likely due to formic acid decalcification.

MDT decision for surgical resection was carried out with primary reconstruction. Histology from the resection revealing complete excision of eHAE with focal erosion through the buccal cortex. The patient has recovered well and to date there is no evidence of recurrence.

Discussion: Epithelioid haemangioendothelioma (eHAE) is a very rare vascular tumour of low grade malignancy which presents within the lung, liver or bone including of the head and neck region with four cases reported within the mandible. Despite characteristic morphology, diagnosis can be challenging due to small sample size and the rarity of diagnosis. eHAE's are characterised by a WWTR1-CAMTA1 fusion with a minority also showing a YAP1-TFE3 fusion however decalcification in formic acid can prevent adequate molecular analysis.

Conclusion: eHAE is a rare tumour with characteristic histological features and potential for recurrence and metastasis. Molecular testing can assist diagnosis and development of local tissue pathways for intraosseous tumours that facilitate molecular testing is essential for prompt diagnosis.

119	**EXTRANODAL ROSAI-DORFMAN DISEASE AFFECTING THE MAXILLA AND MAXILLARY SINUS: A CASE REPORT AND LITERATURE REVIEW**

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Introduction: Rosai-Dorfman disease (RDD), also known as sinus histiocytosis with massive lymphadenopathy, is a benign, self-limiting non-Langerhans cell histiocytosis of unknown etiology. It commonly affects younger individuals in their first two decades of life, showing no significant gender or racial predilection. RDD traditionally presents with bilateral, painless cervical lymphadenopathy with constitutional symptoms. Examples of extranodal RDD have been described in literature, whereby the nasal cavity and paranasal sinuses are common locations, being the site of involvement in 11% of cases.

Case report: This report highlights a case of extranodal RDD presenting as a progressively enlarging left maxillary intrabony mass in a previously healthy 10-year-old female patient. Radiographic examination revealed a mixed radiolucent-radiopaque lesion with poorly defined margins affecting the left maxilla, extending superiorly to involve the ipsilateral maxillary sinus. Histological evaluation showed a diffuse infiltrate consisting predominantly of plasma cells with interspersed large cells showing a clear cytoplasm and a vesicular nuclear chromatin pattern. No active emperipolesis was seen within these large cell clear cells. CD3 and CD20 immunohistochemical stains highlighted the presence of scattered reactive T- and B-cells respectively. CD138 confirmed the presence of numerous background plasma cells, which ultimately stained positive for IgG_4. The large clear cells stained positive for S100 and CD68, but were negative for CD1a.

Conclusion: Due to its rarity, wide phenotypic expression and uncertain etiology, the treatment of RDD is not standardised. Extranodal RDD affecting the craniofacial complex tends to have an indolent behaviour and is often self-limiting.

120	**IDENTIFICATION AND ASSESSMENT OF CANDIDATE BIOMARKERS IN EARLY DETECTION AND PROGRESSION OF ORAL SQUAMOUS CELL CARCINOMA**

Routray S[1], Ravindra Kumar[2], Keshava K Datta[3], Aditi Chatterjee[3], Harsha Gowda[3], Neeta Mohanty[4], Rupesh Dash[5] ([1]All India Institute of Medical Sciences, Bhubaneswar, India. [2]University of Illinois at Chicago, Chicago IL 60612. [3] Institute of Bioinformatics, Bangalore, India. [4] Siksha 'O' Anusandhan University, Bhubaneswar, India. [5] Institute of Life Sciences, Bhubaneswar, India)

Background: An integrated approach for understanding molecular transformation of OSCC propagating early detection and belvedere to invasion and metastasis is sustainable. The workflow including bioinformatics to predict candidate genes, confirming their presence with proteomics and validation of same involved in various OSCC pathways, has proven to be a success. Increased knowledge about such molecular markers paves the way to a more individualized cancer treatment aiming for better outcome and less overtreatment and sequel.

Objective: Identification of role and interaction of a panel of candidate biomarkers in early invasion, progression and metastasis in OSCC using an integrated approach.

Methods & Results: A preliminary search was primed for candidate genes from various databases. Using jVenn software the correlation among these databases with common genes, metastatic in origin were evaluated. Further STRING, Oncomine and CRN databases were all researched for correlation of our candidate genes. Analysis of archived FFPE blocks using iTRAQ-based mass spectrometry for presence and characteristics of the same. Final validation was completed using immunohistochemistry (IHC) to establish the outcome.

Results of these study expressed a strong communiqué and interrelationship between these candidate genes. A hypothetical pathway analysis led us to propose an interface for the identified genes in invasion and metastasis in OSCC.

Conclusion: This paper demonstrates the significance of panel of molecular biomarker as a diagnostic tool and its correlation in the progression of OSCC. An insight into the probable association of CAF's and these biomarkers in evolution and malignant transformation of OSCC further magnifies the molecular-biological spectrum of OSCC tumour microenvironment.

121	**CUTANEOUS AND PULMONARY BLASTOMYCOSIS INFECTION: A CASE REPORT**

Ruiz-Vázquez Yamely[1], Sánchez-Valle Andrés[2], Cano-Valdez Ana María[3], Aldape-Barrios Beatriz[1]. (Universidad Nacional Autónoma de México[1], Hospital General de Salina Cruz, Oaxaca[2], Instituto Nacional de Cancerología[3])

Introduction: Blastomycosis is a chronic granulomatous disease caused by *Blastomyces dermatitidis*. More frequently, it presents as a respiratory disease. However, extrapulmonary disease occurs in 25-30% of the patients after hematogenous dissemination from the lungs, the most common site is the skin, also bone, genitourinary system and central nervous system can be affect.

Case Report: A 34-year-old female from Oaxaca, México, present an asymptomatic ulcer, verrucous and eroded plaques, and scab areas of unknown evolution on the low and medium third of the face and the nose. The histopathological staining with hematoxylin and eosin revealed a squamous epithelium with a pseudoepitheliomatous hyperplasia and granulomatous inflammation, containing numerous Langhans multinucleated giant cells and spherical microorganisms of approximately 12 µm characterized by a double-contoured yeast and thick birefringent wall. Special stainings Periodic Acid-Schiff (PAS) and Grocott's methenamine silver (GMS) showed positive results for fungal organisms. The thoracic imaging revealed lung involvement. The histopathological final diagnosis was Blastomycosis.

Discussion: In Mexico from 1898 to 2017 only 6 cases were reported. Blastomycosis infections can clinically be easily mistaken for malignant neoplasms or other cutaneous infections more prevalent in Mexico, such as Leishmaniasis, coccidioidomycosis, leprosy or adiaspiromycosis.

Conclusions: The treatment of choice for all forms of the disease includes Itraconazole 600 mg, oral three days, followed by 200 to 400 mg every day for 6 to 12 months. Spontaneous remissions have been reported in patients with a mild form of Blastomycosis. Our patient have 6 months of follow-up with remission of the lesion

122	**CLINICALLY SIMILAR BUT NOT THE SAME: TWO LINGUAL SWELLING**

Ruiz-Vázquez Yamely[1], Montoya Luis[2], Liceaga Carlos[2], Vélez Madeleine[2], Castilla Hernán[3], Aldape-Barrios Beatriz[1]. (Universidad Nacional Autónoma de México[1], Hospital Juárez de México[2], Hospital Pediátrico de Peralvillo[3]).

Introduction: The presence of lingual lesions in pediatric patients represents a diagnostic challenge, since most of these may feature a similar clinical presentation but unique histopathological characteristics.

Case report: Case #1: A 4-year-old female patient with a lingual swelling of approximately 3 cm. located on the anterior and middle third of the ventral surface of the tongue. The patient's parents refer that this lesion has been present since birth, but has grown significantly during the last year. TC scan shows a circumscribed hypodense lesion; a yellow and brown doughy material was seen on gross examination. The histopathological final diagnosis was dermoid cyst. Case #2, an 8-year-old female patient presented with an asymptomatic swelling of approximately 7 cm in the middle third of the tongue, with a soft consistency and 2-year evolution. An excisional biopsy was performed; a mucoid material was seen on gross examination. The final diagnosis was a lingual cyst with a respiratory epithelium.

Discussion: Only 34 cases of lingual cyst with respiratory epithelium have been reported. This is a congenital cyst characterized by the presence of pseudostratified columnar ciliated epithelium with mucus secreting cells PAS+, while the dermoid cyst produces keratin and its capsule contain cutaneous annexes. The treatment for both lesions includes the complete surgical enucleation.

Conclusion: The presence of lingual lesions must include differential diagnoses such as epidermoid cyst, dermoid cyst, mesenchymal tumors, mucocele, lymphangioma, hemangioma and choristomas. Another rare differential diagnosis to consider is congenital cysts with respiratory or gastric lining.

123	**EPSTEIN-BARR VIRUS (EBV) POSITIVE MUCOCUTANEOUS ULCER OF THE ORAL CAVITY: CASE SERIES**

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Background: Epstein-Barr virus (EBV) positive mucocutaneous ulcer (MCU) is part of the spectrum of EBV-associated lymphoproliferative disorders. Clinical presentation is usually isolated persistent and often destructive oral or cutaneous ulcerative lesions that show histopathologic similarities to high-grade B cell or Hodgkin lymphomas, with potential for misdiagnosis, and subsequent inappropriate therapy.

Objectives: To highlight the histopathologic and clinical findings of a series of EBV-positive MCU of the oral cavity.

Methods: We reviewed the laboratory archives for EBV-positive MCU of the oral cavity, diagnosed between 2010 and 2019 in our institution and describe the histopathologic features and clinical parameters.

Results: Six patients were diagnosed during this period, age range 3-74 years. Four of six patients were female. Two of six cases had underlying immunosuppression. In all cases, there was an initial clinical suspicion of malignancy. Three cases showed typical morphology with an obvious atypical cell population, worrying for lymphoma, while three were more subtle with scanty atypical cells. All cases showed strong EBVISH (in situ hybridisation) positivity that mirrored the extent of atypical cells present. In most cases, the characteristic circumscribed border to the inflammatory population could be identified on biopsy. Five cases resolved, all slowly (range 6 months to 18 months.) One case required further therapy. Of two cases that had a second biopsy, pathologic changes were persistent but more subtle or showed scarring.

Conclusions: The findings illustrate the variability of pathologic features of EBV mucocutaneous ulcer affecting the oral cavity.

124	**CASE REPORT: ORAL MANIFESTATIONS OF YOUNG PATIENT SUFFERING FROM BOTH THALASSEMIA MAJOR AND HEPATITIS B**

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Introduction: Thalassemia is a hereditary hemolytic anemia characterized by the inability of erythroblasts to produce the beta-chain of the haemoglobin structure. Patients with thalassemia acquire hepatitis most often from viruses contracted with blood transfusions especially in developing countries like Pakistan. This case reports the distinct oral manifestations in young patient with thalassemia major and Hepatitis B.

Case report: An 8 year old male patient visited Jinnah Sindh Dental Outpatient Department with the complaint of bleeding gums. According to the history the patient was suffering from beta-thalassaemia congenitally. Both parents were normal (carrier). He had 5 siblings out of which four were phenotypically healthy (carriers). A 12 year old sister had died due to beta-thalassemia. Patient had undergone regular blood transfusion from the age of 5 years. The patient was diagnosed with hepatitis 2 months ago, possibly due to contaminated blood transfusion.

Clinical Findings: The clinical examination showed that patient was poorly built and under-nourished with short stature. The prominent dental arch parameters evident were characteristic appearance known as ‘chipmunk face (caused due to hyperplasia of bone marrow in the maxilla that exceeds the mandible). Frontal and parietal bossing with depressed nasal bridge was present.

Oral Findings: Intraoral examination demonstrated Class II malocclusion along with maxillary protrusion. Other findings included overcrowding of mandibular anteriors, proclined upper anterior teeth, generalised yellowish discolouration teeth, mild generalised diastema, localised periodontitis affecting the lower anteriors. Multiple decayed teeth with heavy deposition of calculus and plaque on teeth with dark stains were also seen.

125	**CASE REPORT: REPORTING THE ORO-DENTAL FINDINGS OF ELLIS-VAN CREVELD SYNDROME – A RARE GENETIC DISORDER**

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Introduction: Ellis-van Creveld syndrome (EVC) is a rare autosomal recessive disorder which is also known as chondroectodermal dysplasia. It is caused due to genetic mutation in two genes i.e: EVC1 and EVC2. The syndrome has a rare occurrence with prevalence of 1 in 60,000 to 200,000 worldwide. EVC consists of distinctive tetrad of various clinical manifestations; chondrodysplasia of tubular bones leading to dwarfism, polydactyly plus syndactyly, ectodermal dysplasia comprising of sparse hair together with dystrophic nails and congenital morbus cordis commonly involving the single atrium and ventricular septal defect. In addition to the characteristic features, EVC also consists of unique set of oral manifestations. The present case discusses the various oro-dental findings in a young patient of this rarely reported syndrome.

Case report: A 7 year old male patient visited Jinnah Sindh Dental Outpatient Department with complaint of missing maxillary anterior teeth. In the present case, the patient had a history of consanguineous marriage of parents, supporting the recessive nature of the disorder.

General Examination: The general examination showed that the patient had disproportionate short stature. The limbs were short with postaxial polydactyly affecting both hands. The nails were thin and dystrophic. Other findings were hypertelorism and broad depressed nasal bridge.

Oral examination: The oral examination revealed absence of mandibular anterior mucobuccal fold, mandibular hyperplastic frenula, labiogingival adhesions, serrated appearance of the gingiva and morphological abnormalities of mandibular anterior teeth with prominent diastema. The maxillary incisors were absent. Multiple frenulum and attaching labial mucosa to alveolar mucosa were also observed.

126	**MATRIX METALLOPROTEINASES 9 & 14; TUMOR MICROENVIRONMENT MODULATORS IN TUMOR GROWTH AND INVASION, FOCUS ON BASAL CELL CARCINOMA AND SQUAMOUS CELL CARCINOMA OF HEAD AND NECK**

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Background: In tumor development, tumor, stromal and inflammatory cells, all release different matrix metalloproteinases(MMPs). MMPs rupture physical barriers, increase tumor induced angiogenesis and disrupt local tissue to promote invasion & metastasis leading to poor prognosis.

Objective: MMP 9 & 14 expression in Squamous cell carcinoma(SCC) and Basal cell carcinoma(BCC) respectively to determine if any relation between MMPs expression with SCC grade and BCC subtype.

Methods: 49 SCC & 42 BCC cases recruited, immunohistochemical staining of SCC & BCC with antiMMP9 & 14 antibodies respectively. Sections were microscopically scored: intensity (0-3), proportion (0-3), overall score(intensity+proportion). Tumors were categorized into low and high expression groups.

Results: SCC cases, 36.7% showed strong staining intensity of MMP9 antibody in tumor cells, 28.6% moderate, 32.7% weak &only 2% were negative, while 51% cases had strong staining intensity in stroma adjacent to tumor, 26.5% moderate, 20.4% weak & 2% were negative. For 6.1% cases overall expression was weak, 93.9% showed high expression. Statistical relation between histological grade & overall expression were significant.

BCC cases, 47.6% showed strong staining intensity of MMP14 in tumor cells, 45.2% moderate & 7.1% had weak while 35.7% cases had strong staining intensity in stroma, 45.2% moderate & 19% cases showed weak. Statistical relation between overall expression for tumor & morphological grades of BCC were significant.

Conclusion: Results demonstrated marked expression of MMP 9 & 14 in high grade SCC & in high risk morphological types of BCC respectively. Hence, targeted therapy can help in preventing the tumor growth, invasion & metastasis.

127	**SARCOIDOSIS OF THE HEAD AND NECK.** Said-Al-Naief N [a], Asadi H [b] ,Carlos R [c] , Edwards P [d] ([a]Oral and Maxillofacial Pathology, School of Dentistry and School of Medicine, Oregon Head and Sciences University. [b] Preventive and Restorative Dentistry, School of Dentistry, University of the Pacific. [C]Oral Pathology, Hospital Herrera Llerandi. [d]Oral and Maxillofacial Pathology and Office of the Dean, School of Dentistry, Indiana University). **Background**: Sarcoidosis is a rare, chronic multisystem disease of unknown, multifactorial etiopathogenesis that has been partially attributed to CD4 T-cell mediated immunity and activation of macrophages which ultimately result in the formation of the non-caseating granulomatous inflammation that characterizes this disease. Practically any organ in the body may be involved with sarcoidosis including jaw bones. **Objectives:** To report the clinicopathologic and histologic features of 3 cases of Sarcoidosis that involved the maxillofacial and head and neck bones. **Results**: A 30-year-old Caucasian male, 37-year-old Caucasian female and another 39-year-old female presented with lytic, semi-destructive radiolucencies of the mandible and the third case also demonstrated involvement of the skull base and maxillary sinus. Biopsies demonstrated non-caseating granulomatous inflammation in all patients and chest x-rays also confirmed the presence of soft tissue densities with features consistent with the diagnosis rendered in the first 2 cases and there were suggestions of the same in the last case with further studies ordered to shed further light on the patient's findings. **Conclusion:** Involvement of jaw bones among other structures of the head and neck is uncommon but well documented and often demonstrates significant amount of bone destruction. Including Sarcoidosis in the differential diagnosis of lytic bone lesions of the gnathic and head and neck regions can tremendously improve patient's wellbeing, outcomes and treatment options as well as preventing unnecessary morbid surgical intervention.

128	**INCIDENCE OF PREMALIGNANT CHANGES IN ORAL CHRONIC HYPERPLASTIC CANDIDOSIS (CHC)**

Saik, W-N[1,2], Khurram SA[1], Jurge S[1] ([1] Unit of Oral and Maxillofacial Pathology and Medicine, Sheffield Teaching Hospital NHS Foundation Trust. [2] Department of Pathology, The Royal London Hospital, Barts Health NHS Trust)

Background: There has been an ongoing debate on the correlation between fungal infection and oral squamous cell carcinoma (SCC). Some argue that Chronic Hyperplastic Candidosis (CHC) is a premalignant condition. However, the risk of malignant change in these lesions remains controversial, with limited evidence to support this.

Objectives: To assess if there is any correlation between CHC and the possibility of it developing into epithelial dysplasia or malignancy and determine if other known SCC risk factors plays a role.

Methods: Retrospectively evaluation of a cohort of 105 patients diagnosed with CHC over a two year period (2011 and 2012) were undertaken using the histopathology reports(s) and tissue slides. Five year clinical follow up information was obtained to determine if any of the cases developed dysplastic or malignant changes over the years. Information about risk factors and habits was also acquired.

Results: There were five cases where initially biopsied CHC lesions were suggested to have progressed to epithelial dysplasia and SCC. Review of these 'progressed' cases did not show typical CHC features with evidence of atypia and/or dysplasia in the first instance (with overlying fungal infection). None of the typical CHC cases developed dysplasia/malignancy over the follow up period.

Conclusions: This project has demonstrated that the risk of CHC being a premalignant condition is minimal compared to what has been reported in the literature. Although this might only represent a local population and small cohort, a multi-centre investigation would be beneficial to establish the significance of findings from this work.

129	**SPINDLE CELL RHABDOMYOSARCOMA OF THE MANDIBLE: A CASE REPORT AND REVIEW OF THE LITERATURE.** Saik W-N, Suchak K, Piper K, Balogh P, Cottom H (Department of Pathology, The Royal London Hospital, Barts Health NHS Trust). **Introduction:** Rhabdomyosarcoma (RMS) is the most frequently encountered soft tissue sarcoma in paediatric patients, with 35% arising in the head and neck region. Primary intraosseous rhabdomyosarcomas are however exceptionally rare with fewer than 10 cases identified in the literature. Recent studies describe a distinct group of primary bone RMS with gene alterations involving *EWSR1* or *FUS*. We report an interesting case of a primary spindle cell RMS affecting the mandible of a 6-year-old girl. **Case details:** The child presented with left facial swelling and pain. Clinically the left mandible was enlarged. An infective cause was suspected and oral antibiotics prescribed, but with no improvement. CT mandible imaging showed an aggressive lesion arising from the bone, occupying the masticator space and extending into the lateral skull base. Incisional biopsies demonstrated a high-grade spindle cell neoplasm, associated in part with irregular bony islands. The differential diagnoses primarily included osteoscarcoma and rhadomyosarcoma. The case was sent to a tertiary referral centre and a spindle cell rhabdomyosarcoma was confirmed. The possibility of the recently described intraosseous rhabdomyosarcoma with either *EWSR1* or *FUS* gene rearrangements was excluded by FISH. Following MDM discussion, the patient was commenced on neoadjuvant chemotherapy. The patient is awaiting her second cycle of chemotherapy. **Conclusion:** RMS in children has a favourable prognosis with 5-year survival rates of >70% reported. Prognosis is determined by clinical and biological factors with spindle cell RMS considered to be intermediate-risk. Better prognosis is also described in fusion-negative cases, with a multimodality treatment approach typically adopted

130	**CHONDROID TENOSYNOVIAL GIANT CELL TUMOUR OF THE TEMPOROMANDIBULAR JOINT.**

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Background: Tenosynovial giant cell tumour (TGCT) is a locally aggressive tumour arising from the synovium, most commonly associated with the large joints such as the knee but they may involve the temporomandibular joint (TMJ). Compared to other sites, TGCT of the TMJ more frequently shows chondroid metaplasia and may mimic chondroid neoplasms.

Case Report: A 78-year-old man presented with several months of history of otalgia, tinnitus and aural fullness. A CT scan of his brain showed a destructive, lytic lesion in the squamous part of the temporal bone extending into the zygomatic arch.

A fine needle aspiration biopsy produced a blood stained smear with scattered pigmented histiocytes and multinucleated giant cells. A diagnosis of giant cell tumour was favoured. The patient was commenced on Denosumab, however showed no clinical improvement after six months. A core biopsy was then performed at Westmead Hospital which revealed a cellular neoplasm comprising spindled and epithelioid cells containing haemosiderin pigment, multinucleated giant cells and chondrocyte-like cells. Focally, calcific deposits were observed with a 'chicken-wire' like pattern. The possible differential diagnoses of chondroblastoma and tenosynovial giant cell tumour were suggested.

The histiocyte-like cells showed positive immunoperoxidase staining with CD68, while the larger epithelioid cells were positive for podoplanin (D2-40). The cells were negative for S-100 and H3-K36M, thereby confirming a diagnosis of TGCT.

Conclusion: Although rare, TGCT are known to show chondroid metaplasia, particularly when involving the TMJ, and they may mimic a chondroblastoma. Immunohistochemical markers such as podoplanin, S-100 and H3F3 K36M are useful in distinguishing these entities.

131	**DOES ORAL EPITHELIAL DYSPLASIA CRITERIA HOLD TRUE FOR DYSPLASTIC EPITHELIUM OF ORAL SUBMUCOUS FIBROSIS?**

Sanjai K· (Department of Oral Pathology, Vydehi Institute of Dental sciences and research centre, Rajiv Gandhi University of Health Sciences, Bangalore, India)

Background: Oral Submucous Fibrosis (OSMF) is a oral potentially malignant disorder (OPMD) with an appearance of epithelium from hyperplastic to atrophic depending on the histopathologic staging. Oral epithelial dysplasia (OED) grading is done in OPMD, but it is difficult to grade every architectural and cytologic features when epithelium is atrophic.

Objectives: To assess the OED features in OSMF and to compare with those in dysplastic epithelial margins of OSMF with concommitant Oral squamous cell carcinoma(OSCC).

Methods: Histopathologic staging of 39 cases were done by Pindborg & Sirsat system and

OED features were evaluated by WHO grading system and Binary system. The Statistical software SPSS 22.0 was used for the descriptive and inferential analysis.

Results: 16 cases were diagnosed as OSMF without dysplasia (Group 1), 16 cases had dysplasia (Group 2) and 7 cases had concomitant oral squamous cell carcinoma (Group3).

All the cases (100%) of Group 2 & Group 3 showed architectural features like irregular epithelial stratification, loss of polarity of basal cells and cellular features like nuclear-cytoplasmic pleomorphism and altered ratio. Premature keratinization was seen in group 2 (62.5%) and group 3 (85.7%). However, keratin pearl was seen only in group 3 (28.6%). Presence of increased size and number of nucleoli had a significant value ($P<0.017$).

Conclusion: Some of the features of OED are not discernable, however some have striking presence in OSMF. It is not possible to use WHO system in all cases, rather binary system can be used with modification of criteria relevant to OSMF.

132	**PATTERNS OF ORAL MUCOSITIS IN ADVANCED OSCC PATIENTS MANAGED WITH PROPHYLACTIC PHOTOBIOMODULATION THERAPY – INSIGHTS FOR FUTURE PROTOCOL DEVELOPMENT.**

Santos-Silva AR [a]; Faria KM [a,b]; de Pauli Paglioni M [a]; Palmier NR [a]; Prado-Ribeiro AC [a,b]; Treister NS [c]; Epstein JB [d]; Migliorati CA [e]; Brandão TB [b] ([a] Oral Diagnosis Department, Piracicaba Dental School, University of Campinas; [b] Dental Oncology Service, São Paulo State Cancer Institute; [c] Division of Oral Medicine and Dentistry, Brigham and Women's Hospital and Dana-Farber Cancer Institute, Boston, Massachusetts; [d] City of Hope National Medical Center, Duarte, CA and Samuel Oschin Comprehensive Cancer Institute, Cedars Sinai Hospital System; [e] College of Dentistry, University of Florida.)

Background: Photobiomodulation therapy (PBMT) is recommended for the prevention of radiation-induced oral mucositis (OM) in head and neck patients. It is unclear to what extent the delivered PBMT therapy effectively provides an adequate uniform dose to the at-risk tissues.

Objective: To characterize oral sites affected by radiation-induced OM and its clinicopathological outcomes in oral squamous cell carcinoma (OSCC) patients subjected to prophylactic PBMT.

Methods: The site distribution of OM, OM grading (NCI, Version 4.0), OM-related pain (VAS), analgesic protocol (WHO) and use of enteral nutrition were evaluated weekly during treatment for OSCC patients with prophylactic PBMT. Data analysis was performed using descriptive statistics.

Results: 145 OSCC patients were included. The most frequently affected sites by OM included lateral tongue (44.1%) and buccal mucosa (37.2%). Keratinized oral mucosae sites, including the tongue dorsum (6.21%) and retromolar trigone (8.3%), were also affected. Peak OM scores were observed at weeks 5, 6 and 7, with severe OM (NCI grades 3 and 4) rates of 11%, 20%, and 25%, respectively. The cumulative occurrence of severe OM was 23%, which developed as early as week 3 and as late as week 7. The highest mean value of OM-related pain (2.7) was observed in the sixth week, and 13.8% of the patients required feeding support.

Conclusion: Compared to previously published studies that did not provide PBMT, OM, pain and analgesia and tube feeding use reduction was seen. Keratinized surfaces should also be included in the prophylactic PBMT for OM aiming to reduce severe OM.

133	**SALIVARY PROTEINS AS MARKERS OF RADIATION-RELATED ORAL TOXICITIES**

Santos-Silva AR[a]; Palmier NR[a]; Migliorati CA[b]; Prado-Ribeiro AC[c]; de Rossi T[d]; Busso Lopes AF[d]; Paes Leme AF[d]; de Castro Junior G[e]; Lopes MA[a]; Brandão TB[c,f] ([a]Oral Diagnosis Department, Piracicaba Dental School, University of Campinas (UNICAMP), Brazil. [b] College of Dentistry, University of Florida, Gainesville, FL, USA. [c]Dental Oncology Service, São Paulo State Cancer Institute (ICESP), School of Medicine of the University of São Paulo, São Paulo, Brazil. [d]Brazilian Biosciences National Laboratory, LNBio, CNPEM, Campinas, Brazil. [e]Clinical Oncology Service, São Paulo State Cancer Institute (ICESP), School of Medicine of the University of São Paulo, São Paulo, Brazil. [f]Odontologia Oncológica, D'Or, São Paulo, Brazil)

Background: Lately, there's been a great search for molecular-based treatments.

Objectives: The aim of this study was to characterize the salivary proteomic profile of patients treated for oral squamous cell carcinoma (OSCC) and its correlation with the risk of developing severe radiation-related oral toxicities.

Methods: 35 OSCC patients submitted to radiotherapy (RT) or chemoradiotherapy (CRT) were included. Xerostomia, dysphagia, dysphagia-related pain (DRP), dysgeusia and oral candidiasis (OC) were daily evaluated. Whole saliva was collected prior to RT and subjected to target proteomic analysis; results were statistically compared to oral toxicities clinical outcomes. **Results:** 80% of patients presented stage III/IV OSCC. 63% were submitted to CRT protocols, mean RT dose of 66.7Gy. 42.9% and 60% of patients presented with severe (grades 2-3) xerostomia and dysphagia, respectively; 35.3% presented severe DRP. 68.6% presented grade 2 dysgeusia and 25.7% presented OC over 4 weeks during RT. Target proteomic analysis revealed a total of 56 proteins from which statically significance was observed in: 11 correlated with severe xerostomia, 1 with severe dysphagia, 4 with severe DRP, 1 with dysgeusia and 19 with over 4 weeks of OC. 8 proteins were concomitant to xerostomia and OC and 1 protein concomitant for dysgeusia and OC.

Conclusions: The present study is pioneer in characterizing possible biomarkers that may allow the identification of patients that are more likely to develop severe RT oral toxicities. Further studies are necessary in order to validate and better understand the role of these proteins in the pathophysiology of radiation-related oral toxicities.

134	**ONCOLOGICAL SAFETY OF PHOTOBIOMODULATION THERAPY IN ORAL AND OROPHARYNGEAL SQUAMOUS CELL CARCINOMA PATIENTS: AN INTERIM ANALYSIS**

Santos-Silva AR [a]; Kauark-Fontes E [a], Faria KM [ab], Alves CGB [a], Palmier NR [a], Oliveira LR [a], Prado-Ribeiro AC [ab], Paes Leme AF [c], Migliorati CA [d], Castro Jr G [b], Lopes MA [a], Brandão TB [b]. ([a] Oral Diagnosis Department, Piracicaba Dental School, University of Campinas. [b] Dental Oncology Service, São Paulo State Cancer Institute. [c] Brazilian Biosciences National Laboratory. [d] College of Dentistry, University of Florida.)

Background: Photobiomodulation therapy (PBMT) has been increasingly used to manage oral toxicities secondary to cancer treatment; however, its impact on the stimulation of malignant cells is currently unknown.

Objective: This four-arm, double blind, randomized controlled phase III clinical trial (RBR-4w4wwx) was designed to assess the impact of prophylactic PBMT for oral and oropharyngeal mucositis (OM) in the survival rates of patients with oral and oropharyngeal squamous cells carcinoma (OPSCC).

Methods: Patients were randomly allocated into four groups: intraoral prophylactic PBMT (G1), placebo intraoral PBMT (G2), extraoral prophylactic PBMT (G3), and placebo extraoral PBMT (G4). OM grade (NCI) and OM-associated pain (EVA scale) were assessed weekly during OPSCC treatment. Tumor outcomes were evaluated quarterly during 12 months. Data analysis was performed using descriptive statistics.

Results: 45 OPSCC patients were included. OM peak ulcerations (grade 2 or more) were observed at week 3 for G1, G2 and G4, and week 5 for G3. Placebo groups had highest levels of pain when compared to the treatment/intervention groups ($p<0.05$). No evidence of oral premalignant lesions or second primary tumors were observed in any of the patients included. In terms of cancer treatment outcomes, tumor persistence and regional metastases were higher among placebo patients after 12 months of follow-up ($p<0.05$). Death due to disease progression was observed in 25% of patients from the treatment/intervention groups and 37.5% of placebo patients ($p<0.05$).

Conclusion: No negative impact of prophylactic PBMT for OM could be detected in terms OPSCC treatment outcomes.

135	**HPV IN ORAL SQUAMOUS CELL CARCINOMA - CHANGING TRENDS IN THE RISK FACTORS AND DEMOGRAPHICS OF ORAL CANCER IN THE INDIAN SUBCONTINENT** Saxena S[a], Kumar S[b] ([a]Department of Oral Pathology and Microbiology, ESIC Dental College, Rohini, Delhi. [b]Oral and Maxillofacial Surgery, ITS College of Dental Sciences, Muradnagar, Ghaziabad, U.P.) **Background:** Human Papilloma Virus (HPV) is a double-stranded DNA virus that infects the epithelial cells of skin and mucosa. It is established now that sexual contacts, both conventional and oral, are means of transferring the HPV virus through direct skin to skin contact. A small number of oral cavity cancers are related to HPV infection which may not be due to oral habits. **Objectives:** To review the existing literature on the association of HPV and oral cancer and to highlight the uniqueness of their clinical presentation and histopathologic appearance. **Methods:** Literature search was undertaken and all relevant data collected where an association of HPV and oral cancer has been established. The focus was on studies involving Indian population where known risk factors were not present in oropharyngeal cancers. **Results:** Several studies reveal characteristic clinical presentation of oropharyngeal cancer without known etiologic factors like tobacco smoking or chewing and usage of betel nut with or without additives. Females of younger age groups are more likely to fall in this category. HPV of high risk strains have been isolated from the affected tissues and certain uniqueness is observed in the microscopic features of such HPV associated oral cancers. **Conclusions:** The prototypic patient with oral cancer is no longer an elderly male with the habit of smoking or chewing tobacco or betel nut and or drinking alcohol for many years. HPV is emerging as a powerful risk factor and is increasingly recognized as a subgroup of oral squamous cell carcinoma with a distinct biological and clinical profile.

136	***ACTINOMYCES*-ASSOCIATED CALCIFICATIONS IN A MANDIBULAR DENTIGEROUS CYST THAT PRESENTED WITH INFERIOR ALVEOLAR NERVE PARAESTHESIA** Schembri-Higgans R[a], Azzopardi A[a], Bezzina N[a], Betts A[b]. ([a]Dental Department, Mater Dei Hospital, Malta. [b]Histopathology Department, Mater Dei Hospital, Malta.) **Introduction:** Dentigerous cysts account for approximately 20% of all odontogenic cysts. The classical presentation is as a unilocular radiolucent lesion associated with an unerupted tooth. Typically, asymptomatic, they are often an incidental finding of radiographic investigations. The objective of this case report is to highlight that infected dentigerous cysts may have an atypical presentation which may raise the clinical suspicion of a neoplastic process. **Case description:** This case report describes a rare and atypical presentation of a dentigerous cyst in the mandible, which presented with pain and paraesthesia of the lower lip. The radiological presentation of the lesion was also unusual, with the lesion manifesting as a well-defined radiolucency containing multiple radiopacities. Histology revealed an infected dentigerous cyst, with *actinomyces* colonies and dystrophic calcification. **Discussion:** There are very few described cases of dentigerous cysts presenting with paraesthesia and/or *actinomyces*-associated calcification. Literature review however suggests that *actinomyces*-associated pathology is more common than one would expect. Although actinomycosis is typically described as an infection of soft tissues, *actinomyces*-associated lesions can have a highly variable clinical presentation. This includes the ability to produce *actinomyces*-associated calcifications, although this is rarely observed. **Conclusion:** Infected dentigerous cysts containing *actinomyces*-associated calcifications may need to be considered in the differential diagnosis of lesions presenting as a mixed radiopacity in the jaws. This case also draws attention to the fact that neurosensory disturbance, which is typically associated with malignant disease and injury to the neurovascular bundle, can be a presenting feature of benign entities such as dentigerous cysts

137	**LOW GRADE PAPILLARY ADENOCARCINOMA: A RARE ENTITY**

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Introduction: Low Grade Papillary Adenocarcinoma (LGPA) of minor salivary glands is uncommon, which is noted to occur after 40 years of age with male: female ratio of 2:1. Adenocarcinoma in this site includes salivary type and non-salivary type pathologically.

Prevalence of LGPA is 17% which is often poorly recognized and misdiagnosed, as it has a greater potential for local recurrence with evidence of regional metastasis and only few cases are reported in the literature. LGPA represents a relatively rare histological variant of Polymorphous Low Grade Adenocarcinoma (PLGA).

Case presentation: A 50 year old female reported with a complaint of a swelling in the posterior part of the hard palate, associated with pain of one year duration. On examination, a mobile sub-mucosal swelling of 01 cm size was noted in the posterior part of the hard palate laterally on the left side, and wide excision of the lesion was performed. On Histological examination, the lesional tissue exhibited extensive well defined papillary arrangement of tumor cells which had a columnar appearance. The lesion was interpreted as LPGA on histological examination which was followed by Immunohistochemistry to confirm the diagnosis. She is disease free over a period of two years and follow up is being done for development of recurrence.

Conclusion: A rare case of LGPA is reported for its diagnostic challenge and the lesion has biological tendency to local recurrence and regional metastasis.

138	**AN UNUSUAL CASE OF STEROID RESISTANT IgG4-RD AFFECTING THE MAXILLARY ALVEOLAR PROCESS**

Shannon, SJ. (Oral and Maxillofacial Surgery, Northwick Park Hospital).

Introduction: Immunoglobulin G4-related disease (IgG4-RD) is an autoimmune fibro-inflammatory condition which is becoming increasingly recognised within the head and neck. I present a rare case of IgG4-RD originating in the alveolar process of the maxilla with orbital and maxillary sinus involvement which is unresponsive to traditional management.

Case Presentation: A 37 year old Somalian woman presented with a 4 month history of progressive swelling of her right cheek and trismus. She had paraesthesia and neuropathic pain affecting the V2 and V3 regions of the right trigeminal nerve. Testing of cranial nerve V revealed that she had decreased light touch sensation over the site of swelling. Hearing was reduced on the right side on whisper test.

Investigations: Ultra-sound, MRI and CT scans confirmed a mass centred on the right maxillary alveolus extending into the right buccal and masticator space, maxillary sinus and orbit with involvement of the right infra-orbital and greater palatine nerves.

Histopathological analysis revealed a storiform pattern of stromal fibrosis with a lymphoplasmacytic infiltrate and obliterative vasculitis. There was an increased number of IgG4+ plasma cells on immunostaining.

Treatment: She was started on corticosteroid but showed no response. Treatment with cyclophosphamide and rituximab provided an improvement clinically and symptomatically.

Discussion: Clinically, IgG4-RD presents as a tumefactive, tissue destructive lesion and often mimics malignant tumours which can complicate diagnosis. IgG4-RD can be managed medically and it is important to differentiate this disease from other pathologies in order to avoid invasive surgical management.

139	**CORRELATION OF ORAL HEALTH STATUS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN A TERTIARY CARE HOSPITAL, INDIA**

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Background: Oral health is considered to be an important factor in respiratory diseases like Pneumonia and chronic obstructive pulmonary disease (COPD). Poor oral health has been implicated as an independent risk factor for the development of COPD, but few studies have evaluated the association between oral health and COPD.

Objective: To assess the oral health and habits of COPD individuals visiting our OPD for their regular check-up.

Subjects and Methods: We performed a case-control study of oral health among patients with COPD exacerbators and healthy non COPD controls. Cases had experienced ≥1 exacerbation in the previous 12 months, while controls were healthy patients reporting to the dental OPD for regular dental checkup. We evaluated oral health status, recorded dental symptoms/habits, and Pulmonary Function test (PFT). In a subset, we performed blinded dental exams to measure bleeding on probing, probing depth, clinical attachment loss, periodontitis severity, plaque index, gingival index, and carries risk. We evaluated associations between oral health and COPD using logistic regression.

Result: Self-reported oral health status and objective dental findings had variations between cases and controls. Participants with COPD had multiple missing teeth, higher amount of plaque and calculus indicating poor dental health. Oral candidiasis, keratotic white lesions and oral melanosis were also present.

Conclusion: In the present observational study, we found that participants with COPD have poor oral health that compromised their quality of life probably precipitating an acute exacerbation. Incidence of COPD can be reduced by good oral hygiene measures.

140	**OSTEOCHONDROMYXOMA OF THE MANDIBLE. REPORT OF A CASE.**

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Background and objective: Osteochondromyxoma (OCHM) of bone is a rare benign, sometimes locally aggressive, chondroid and osteoid matrix producing tumor, with extensive myxoid changes. The aim of this presentation is to report a case of OCHM in an unusual location.

Case presentation: A 6-year-old girl, presented with facial asymmetry, due to an asymptomatic tumor on the right side. Imaging studies showed a mixed lesion in the body of the mandible with cortical expansion and perforation. Total surgical removal of the lesion was performed. Microscopically, solid hypercellular areas of primitive mesenchymal appearance were observed with a myxoid stroma and presenting areas of heterogeneous differentiation of chondroid and osteoid material. Immunohistochemical studies showed positive reaction for Vimentin and CD99 in neoplastic cells and focally for S-100 protein.

Discussion and Conclusion: OCHM was recognized by the WHO in 2013 as a new entity. Only about 750 cases were report since. Although it can occur in any bone, only one case has been reported previously in maxillary bones. The etiology is unknown, but it presumed to be the morphological expression of a Carney complex (CNC) type myxoma. It is seen in about 1% of all patients with this disorder. However, in our patient, there was no clinical evidence of CNC. Due to the low frequency of OCHM, ignorance of its clinical and histological characteristics could lead to an erroneous diagnosis. The case that we present in this paper, contribute to a better understanding of this entity.

141	**CORRELATION OF SYNDECAN 1 EXPRESSION IN SOLID AND UNICYSTIC AMELOBLASTOMA AND ITS CELLULAR COMPONENTS.** Smitha T, Mshra L. (Department of Oral Pathology, VSDCH,RGUHS) **Background:** -Syndecan-1(SDC1), is a transmembrane heparan sulphate proteoglycan - CD138, participates in odontogenesis and is known to regulate cytoskeletal organization, growth factor signaling, cell–cell adhesion, and extracellular matrix attachment. Loss of expression of syndecan-1 is associated with tissue invasion, metastasis and poor prognosis. **Objectives:** 1. To study the syndecan expression in solid and unicystic ameloblastoma. 2. To assess and compare the distribution of the syndecan-1 in various cellular components of the solic multicystic and unicystic ameloblastoma and correlate with their differentiation and biological behaviour. **Methods:** Samples in this study consist of 50 cases. 25 cases of solid multicystic ameloblastoma and 25 cases of unicystic ameloblastoma. Formalin fixed paraffin-embedded tissue section were immunohistochemically analyzed for syndecan-1 markers. Expression of syndecan was measured under 400x in the solid ameloblastoma in epithelium where lesional cells are 4 types of cellular components; peripheral basal cells of tumour nests, central stellate reticulum like cells and foci of squamous and granular cells. Unicystic was checked for its cystic lining. Stromal expression of syndecan1 also evaluated in fibroblast like or spindle cells. Plasma cells served as internal controls for the study. These readings were statistically analysed. **Results:** Comparison of the epithelial cell scoring was higher in unicystic compared to solid ameloblastomas. However, the stromal expression was more in solid ameloblastomas moderately increased around the follicles and lesser in the deeper connective tissues. **Conclusion:** - Syndecan proved to be a useful marker to assess and compare the biologic behaviour of solid and unicystic ameloblastomas.

142	**TWO CASES OF ORAL SECRETORY CARCINOMAS**

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Background/introduction: Secretory carcinoma (SC) is a low-grade carcinoma reported in salivary glands (Skalova 2010). The SC in salivary glands has morphologic and molecular similarities to SC in the breast and express both S-100 and mammaglobin. Furthermore, SC harbors the fusion gene transcript ETV6-NTRK3. The parotid gland is the most common location, although SC may also arise in the minor salivary glands of the oral cavity.

Objective: Here, we present two cases of oral SC in minor salivary glands diagnosed at the Department of Pathology, Oslo University Hospital, Norway.

Clinical presentation/methods: Case 1 is from a 76-year-old male who presented with a 1.3 cm tumor in the upper lip. Case 2 is from a 34-year-old female who presented with a 1.5 cm asymptomatic tumor in the right buccal mucosa. Hematoxylin-Eosin stained sections were evaluated. Immunohistochemical staining including S-100 and mammaglobin, were performed. ETV6-NTRK3 fusion gene analysis was studied by Fluorescence *in situ* hybridization.

Results: Microscopically, both tumors were epithelial and partly encapsulated. In case 1, the growth pattern was mainly tubular with strands of a hyalinized stroma. Cystic rooms and a papillary growth pattern were also present. In case 2, both a cystic and a solid growth pattern was present. The size of the cystic structures varied. Both tumors tested positive for S-100 and mammaglobin, and for the ETV6-NTRK3 fusion gene.

Discussion: SC is rare in minor salivary glands in the oral cavity. The histological features of the present cases will be discussed and compared to the literature.

143	**QUALITATIVE ENHANCEMENT OF THE DNA PLOIDY ANALYSIS CRITERIA TO ASSESS MALIGNANT TRANSFORMATION RISK**

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Background: DNA ploidy analysis is arguably the most sensitive and reproducible approach to assess risk in oral potentially malignant disorders. Although aneuploidy has been associated with a high-risk of malignant transformation (MT), the current diagnostic criteria of aneuploidy are not specific to oral mucosal tissues and thus yield positive predictive values (PPV) ranging from 30% to 40%.

Aims: The aims of this study were to analyse the ploidy status of archived material diagnosed as oral leukoplakia (OL) with follow-up data on MT and to review the risk classification criteria.

Methods: Nuclei suspensions were enzymatically prepared from formalin-fixed paraffin embedded tissue from 121 OL patients and stained with propidium iodide for flow-cytometry. Twenty-three patients underwent MT. Histograms were initially analysed for the proportion of nuclei in G1 (2c), S-phase, G2 (4c) and 5c-exceeding rate (5cER). Histograms diagnosed as aneuploid were further investigated qualitatively based on nuclei distribution pattern. Log-rank test on Kaplan-Meier curves (LRKM $p<0.05$) as well as sensitivity (SS) and specificity (SP) were calculated for both traditional aneuploidy-based risk (TAR) and enhanced aneuploidy-based risk (EAR).

Results: Seven aneuploid histogram types were detected, of which only 3 proved truly high-risk. EAR was then stratified as low-risk (diploid), medium-risk (low-risk aneuploid) and high-risk, whereas TAR remained as diploid (low-risk) and aneuploid (high-risk). Aneuploidy in TAR had PPV=55%, SS=88%, SP=81% (LRKM $p<0.0001$). High-risk in EAR showed PPV=79%, SS=82% and SP=94% (LRKP $p<0.0001$).

Conclusion: enhancement of TAR based on qualitative histogram classification significantly improves predictive values. Flow-cytometry is an accessible approach to assess MT risk in OL.

144	**RENAL OSTEODYSTROPHY IN PATIENTS WITH CHRONIC RENAL FAILURE AND SECONDARY HYPERPARATHYROIDISM: A CASE SERIES**

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Background: Renal Osteodystrophy (ROD) is one of the most common complications of Chronic Renal Failure (CRF) associated with secondary hyperparathyroidism (HPT). The combination of CRF and HPT can affect bone turnover, mineralization and volume. Radiographic alterations of ROD are one of the earliest signs of chronic renal failure.

Objectives: To study oral manifestations, radiographic and histological patterns of three ROD patients.

Methods: The three ROD cases were fully investigated and prospectively followed-up for over 1 year. Results: All cases were females aged between 25-42 years old, being referred to our dental hospital for treatment of generalized bony hard swellings. Mild paresthesia was reported in one case at the lower left mandible. Radiographic findings of all cases demonstrated similar features such as ground-grass appearance, loss of trabecular pattern, diffuse swelling and generalized loss of lamina dura with thinning of cortical outlines of maxilla and mandible. Microscopic examination revealed a fibro-osseous lesion composed of spindle fibroblastic cells, reactive woven bone trabeculae and randomly arranged multinucleated osteoclasts. Unfortunately, severe jaw enlargement associated with hyperparathyroidism was failed to return to normal even after renal transplantation.

Conclusion: Renal osteodystrophy (ROD) is a frequent long-term complication of renal disease that can induce a broad spectrum of bone metabolism disorders associated with different pathogenic pathways. The symptoms include bone demineralization with trabeculation and cortical loss, giant cell radiotransparencies or metastatic calcifications of the soft tissues. The risk of bone fracture and airway obstruction due to hard palate deformity are of concern during dental treatment.

145	**PRIMARY EXTRACRANIAL MENINGIOMA OF THE MANDIBLE: A CASE REPORT AND LITERATURE REVIEW OF THIS RARE PRESENTATION**

Sundararajan D, Noonan V. (Division of Oral and Maxillofacial Pathology, Goldman School of Dental Medicine, Boston University)

Meningiomas are common benign neoplasms developing within the central nervous system and arise from the meningothelial cells. Extracranial (ectopic) meningiomas are rare and may represent an extracranial extension of an intracranial meningioma, distant metastasis from a primary intracranial meningioma or may originate from arachnoid cells in the sheaths of the cranial nerves that are exiting the skull through the foramina or sutures. Ectopic meningiomas can also arise as true primary extracranial meningiomas originating from ectopic arachnoid lining cells or multipotential mesenchymal cells. Primary extracranial meningiomas occurring in the jaw bones are extremely rare with only 11 reported cases (2 cases in the maxilla and 9 cases in the mandible) in the literature. The infrequent occurrence of this entity presenting in this unusual location of the jaw bones often poses a diagnostic challenge to the oral pathologist resulting in misdiagnosis. We present the tenth mandibular case of extracranial meningioma involving the right side of the mandible in a 56-year-old female. The clinical and radiographic presentation, histopathological features, histopathological differential and immunohistochemical findings of this case are presented. The proposed pathogenesis, treatment options and prognosis are also discussed along with a review of the literature.

146	**SCROFULA: ANALYZING THE ASPIRATE TO AID IN EARLY DIAGNOSIS.**

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Background: Tuberculosis is a commonly occurring mycobacterial pulmonary infection which can also lead to chronic lymph node enlargement. Scrofula is cervical lymphadenopathy due to tuberculosis. Conventional methods are used to detect active pulmonary component of the disease. However tuberculous lymphadenopathy is often difficult to be established routinely; hence Fine needle aspiration cytology can prove to be a useful aid in diagnosing tuberculous lymphadenopathy.

Objectives: To analyze cytomorphological patterns of tuberculous lymphadenopathy by using fine needle aspiration cytology and to analyze presence of acid fast bacilli in different patterns of tuberculous lymphadenopathy by using Ziehl-Neelsen Stain.

Methods: 100 cases of cytological proven cases of tuberculous lymphadenitis were analyzed; first using Giemsa stain to evaluate and categorize the cytomorphological patterns, then using Ziehl- Neelsen stain to screen of AFB in lymph node aspirate.

Result: Four cytomorphological patterns were seen, which were described as: Type1(Primary) presence of neutrophils, & suppuration. (15%); Type 2(Secondary) presence of necrosis, scattered lymphocytes, degenerated cells. (46%); Type 3(Tertiary) presence of necrosis, epithelioid cells, lymphocytes. (30 %); Type 4(Quaternary) presence of Epithelioid granuloma, necrosis, with or without giant cells, while AFB positivity was seen in 76% of cases; Type 2(39%), Type 3(25%), Type 1(10%), Type 4(2%).

Conclusion: FNAC is a quick and economical aid in clinical diagnosis for lymphadenopathies. The cytomorphological pattern for tuberculous lymphadenopathy in the initial phases of the disease shows a reactive response, hence in cases of suspicion it is highly advisable for detecting AFB in order to diagnose the cervical lymphadenopathy as scrofula.

147	**IMPACT OF ROYAL COLLEGE OF PATHOLOGISTS WORKLOAD GUIDELINES IN A SPECIALIST ORAL AND MAXILLOFACIAL PATHOLOGY UNIT.**

Tailor A, Walsh H, Khurram SA, Brierley D. (Unit of Oral and Maxillofacial Pathology, School of Clinical Dentistry, University of Sheffield, UK).

Background: The Royal College of Pathologists (RCPath) workload guidelines, UK, are used to determine staffing requirements and facilitate job planning. This ensures appropriate workload for consultants which safeguards time for reporting and in turn quality patient care. Specimens are assigned points, which equate to clinical work called DCCs (Direct Clinical Care). In 2019, the draft 5th edition of the guideline was published.

Objectives: To compare the 2015 and 2019 RCPath workload guidelines to understand the impact on perceived workload in a specialist Oral and Maxillofacial Pathology (OMFP) unit.

Method: A representative 3-month period was sampled between April 2018 and April 2019 and assessed by two trainees and a consultant. A pilot of ten cases was used to ensure consistency of scoring.

Results: 3160 points/87 DCCs were calculated from the 2015 guideline. 16,176 points/80 DCCs were calculated from the 2019 guideline. This is a difference of 0.53 DCCs per week.

Conclusions: The 2019 system appears to have a negative impact on perceived workload in OMFP, however the difference is fairly minimal. Interpretation of the guidelines was difficult as appropriate scoring parameters were lacking in both versions for certain specimens. For example, in 2015, there were no points assigned for core biopsies from the head and neck and in 2019, guidance did not stipulate points to be assigned for reporting of teeth. This creates areas of ambiguity and potential for error when calculating points. These inaccuracies must be conveyed to the RCPath so that workload is accurately reflected and departments staffed appropriately

148	**A RARE CASE OF SARCOIDOSIS CAUSING OSTEOLYTIC LESIONS IN BOTH JAWS AND SKULL**

Tailor A, Walsh H, Khurram SA. (Unit of Oral and Maxillofacial Pathology, School of Clinical Dentistry, University of Sheffield, UK).

Background: A 65-year-old lady presented to the oral maxillofacial department with a non-healing oral antral fistula. Radiographic examination revealed opacification of the left maxillary antrum and an ill-defined radiolucency in the maxilla. The patient continued to develop further osteolytic lesions in the skull and mandible leading to anaesthesia of the third division of the trigeminal nerve.

Objectives: To discuss the clinicopathological correlation, differential diagnosis and the pathway to achieving a definitive diagnosis in this challenging case.

Results: Clinical symptoms included a history of fatigue, painful joints and chest pain. Multiple biopsies taken from the osteolytic lesions of the mandible, maxilla and a supraclavicular lymph node revealed naked noncaseating granulomas. A head and neck CT revealed an irregular diffuse mottled appearance of the bone in the left maxillary alveolus, right mandible and left temporal bone. ACE and serum calcium levels were normal. CT scans showed hilar lymphadenopathy which was not visible on plain film radiography. Exclusion of other causes of granulomatous inflammation eventually lead to a diagnosis of sarcoidosis. The patient has been discussed at a multiple disciplinary team meeting and referred to a specialist team.

Conclusions: Sarcoidosis is a chronic multisystem granulomatous disease characterised histologically by naked noncaseating granulomas. It has an unknown aetiology and no pathognomonic diagnostic test, making definitive diagnosis difficult. This patient presents with rare and aggressive features appearing to initially present from the maxillary antrum, eventually affecting the jaws and skull with only subtle symptoms of the more cardinal features of the disease.

149	**MANAGEMENT OF A RECURRENT MANDIBULAR UNICYSTIC AMELOBLASTOMA**

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Background: Ameloblastomas are benign, slow-growing odontogenic tumours with numerous subtypes based on clinical and histological assessment. They account for approximately 1% of all oral tumours and are slow growing, expansile lesions which can cause symptoms if sufficiently large or affecting nearby structures.

Case Report: A 55-year-old female was referred to the department of Oral and Maxillofacial Surgery (OMFS) at North Manchester General Hospital, United Kingdom by her general dentist in 2009 regarding an extensive mandibular cyst associated with carious teeth. The cyst was enucleated under general anaesthesia and histopathology confirmed diagnosis of a unicystic ameloblastoma. The patient was uneventfully followed up six-monthly for seven years, which indicated continual healing and no signs of recurrence after which the patient absconded from further review.

In 2020, the patient was referred back to the OMFS department for a large swelling around the body of mandible. An urgent biopsy was performed which showed features consistent with recurrence of the ameloblastoma. Cross-sectional imaging was undertaken and the patient discussed at the head and neck multi-disciplinary team meeting. Subsequently, the patient has been scheduled for segmental resection and reconstruction with a three-dimensional chimeric scapula free flap.

Discussion: 80% of all ameloblastomas occur in the mandible and the unicystic ameloblastoma is a variant of the intraosseous ameloblastoma and has the potential for recurrence after ten years or more.

Conclusions: This case exemplifies the importance of careful and long-term follow up of ameloblastomas, patient education and the importance of histological assessment for diagnosis.

150	**THE DIAGNOSTIC CHALLENGE OF CHILDHOOD PRIMARY SJÖGREN'S SYNDROME. A SINGE-CENTER CASE SERIES**

Piperi E, **Thermos G**, Andreou A, Nikitakis N. (Oral Medicine and Pathology, School of Dentistry, National and Kapodistrian University of Athens)

Background: Primary Sjögren's Syndrome (pSS) is a chronic autoimmune disease affecting the exocrine glands, most commonly observed in middle-aged women. Childhood pSS is both rare and underdiagnosed, since pediatric patients often do not fulfill the diagnostic criteria applicable to adults.

Objectives: To present seven pediatric cases evaluated for pSS and emphasize the need of childhood-adapted diagnostic criteria.

Methods: All pediatric cases under investigation for pSS referred to our Department between January 2018 to December 2019 for oral evaluation and labial minor salivary gland biopsy were reviewed and the relevant data were analyzed.

Results: Seven out of 144 patients with suspected pSS were children (4,86%), aged between 5-15 years old. Sicca symptoms and low unstimulated salivary flow rate were present in one patient each. Although focal lymphocytic sialadenitis (FLS) was observed in all patients, a focus score of $\geq 1/4$ mm^2 was present in 5/7 cases, in one of which light chain B-cell monoclonality was also noted. Four of these 5 patients were subsequently diagnosed with pSS according to the ACR-EULAR, 2016 classification criteria while one seropositive patient, one with a high focus score and one with recurrent parotid swelling and positive family history did not apply to the above criteria.

Conclusions: Pediatric patients may not fulfill the strict adult criteria for pSS, since destruction of the exocrine glands may not be measurable from the onset. Instead, recurrent parotid gland swelling and presence of any FLS, regardless of the focus score, may serve as alternative criteria in order to avoid underdiagnosis.

151	**MICROEVOLUTION OF CANDIDA ALBICANS STRAINS IN OLDER PEOPLE WITH LOW SALIVARY FLOW**

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Worldwide, populations are aging, and older people are more likely to take medications and undergo treatment leading to side effects such as salivary gland hypofunction. It is not known how reduced salivary flow in older people affects the *Candida albicans* strains colonizing the oral cavity. The presence of resistant *Candida* strains could be debilitating for immune- compromised older people.

The aim of this study was to compare *C. albicans* strains colonizing the mouths of older people with low and normal salivary flow.

Methods: Participants aged 65 and above (n=50) were examined and salivary flow rates (SFR) determined. Swabs and smears of the palate and tongue and saliva samples were collected. Smear products were stained with periodic acid-Schiff (PAS). Yeasts were cultured, quantified and presumptively identified using CHROMagar *Candida* agar. Multilocus sequence typing was used to compare *C. albicans* strains.

Results: Twenty-four participants had a low SFR (<0.2 ml/min) while 26 participants had normal SFR (≥0.2 ml/min). A large proportion of participants with low SFR had yeast-positive saliva (95% vs 52%), were highly colonized (> 400 cfu/ml saliva) (68% vs 38%), presented with more PAS positive smears (47% vs 19%) and had more *C. albicans* strains with evidence of microevolution (8/12 participants vs 1/5 participants) compared to those with normal salivary flow.

Conclusions: Increased yeast presence in older people with low salivary flow was confirmed. There was a link between SFR and microevolution of *C. albicans*. The genetic changes may be because *C. albicans* is under pressure to adapt to a low saliva environment.

152	**IMPACT OF EXCISION MARGIN STATUS ON SURVIVAL OF ORAL SQUAMOUS CELL CARCINOMA**

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Background: Oral squamous cell carcinoma (OSCC) is the leading cause of cancer-related deaths in Sri Lanka in men. Surgical resection of the primary tumour with adequate margins is an essential component of the treatment. Failure to achieve a clear surgical margin results in an increased risk of local recurrence and disease related deaths.

Objectives: To analyse the impact of surgical margins on survival in patients treated for OSCC.

Method: Patients diagnosed with OSCC over a 13-year period were retrieved. Both mucosal and deeper surgical margins were measured histologically and grouped. Group A (6mm and above), Group B (5-6mm) and group C (1-5mm) and D (less than 1 mm). Follow-up details and demographic details were gathered.

Results: Out of 351 with a M: F ratio of 3.1:1., 250 patients (A:B:C:D -8:37:120:85) with 5-year survival data were included. The commonest site was buccal mucosa (53%) followed by the tongue (20%). Clinical staging consisted of stages 4 and 3 with 48% and 17% respectively. Group D had the highest recurrence rate (59%) and the lowest survival for 3 (41%) and 5 (31%) years. The groups B and C showed no significant difference in the incidence of recurrences and 3 and 5-year survival. Group A had no recurrences and all survived over 5 years. Further, logistic regression revealed that age, stage and deep margin status are the determinants of survival.

Conclusions: Margin status have a direct influence on survival and recurrence. Further, it was revealed that increasing the margin status to 6 mm or more improves the five-year survival.

153	**SEGMENTAL ODONTOMAXILLARY DYSPLASIA: A RARE DISORDER**

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Introduction: Segmental odontomaxillary dysplasia (SOD), is a rare nonhereditary developmental disorder of the maxilla. It is characterised by painless unilateral enlargement of the right or left maxillary alveolar bone. In the enlarged region, dental anomalies such as missing teeth and delayed eruption occur.

The diagnosis of SOD is mainly based on clinical and radiographic presentation but can be augmented by histological findings.

Case Report: A twelve year old male was referred to our department for evaluation of delayed eruption of teeth. The patient was otherwise asymptomatic and had no significant past medical or family history. He underwent clinical, radiographic and histological examination.

Clinical and radiographic examination revealed hypodontia of the upper right premolars and displacement of the unerupted teeth in the upper right quadrant. Furthermore, there was an abnormal trabecular pattern involving a large portion of the right maxillary alveolus.

Histological examination showed presence of coarse trabeculae of vital woven bone supported by a small amount of coarse fibrous tissue. The vessels in the fibrous tissue were distended but there was no evidence of active inflammation or tumour. A diagnosis of segmental odontomaxillary dysplasia was made.

It is important that dental practitioners consider SOD as a differential diagnosis when encountering patients with unilateral maxillary alterations or facial asymmetry. Early diagnosis before the loss of deciduous teeth can help improve outcomes. Although the features of SOD are well described, there are only a few documented cases in literature, and the condition can easily go undiagnosed.

154	**PRIMARY ACINIC CELL CARCINOMA IN A YOUNG FEMALE: A CASE REPORT**

Venkatasami M, Harrison K. (Department of Pathology, Shrewsbury and Telford NHS Hospitals)

Background: Acinic cell carcinoma (ACC) is a rare, low-grade tumour, accounting for about 5% of all primary salivary gland malignancies. ACCs predominate in the parotid gland, seen in the fifth and sixth decades of life and has a female predilection. Well-differentiated and low-grade tumours are associated with a favourable prognosis.

Description: We report a case of a 16 year-old female, presenting with a right parotid lump, slowly increasing over the last year. Clinical examination revealed a 1.5cm right parotid nodule with no facial nerve involvement and presence of cervical lymphadenopathy. Past medical history was unremarkable.

Findings: Radiological investigations revealed a well-circumscribed lobulated lesion in the anterior right parotid gland with presence of reactive lymph nodes bilaterally.

FNA showed granular cells with a differential of Oncocytoma, Warthin's tumour or acinic cell carcinoma.

Histological examination showed a multinodular appearance with some marked granular cytoplasm with oncolytic and lymphoid infiltrate. Immunohistochemistry was negative for S100, positive with DOG-1. There was widespread PAS-D-resistant granules throughout the tumour cells, with ki67 proliferation index of approximately 5%.

Outcome: The tumour was completely excised and the patient made a full recovery and considered to have a good long-term prognosis.

Conclusion: This is an unusual case of ACC seen in this age group and gender, where less than 4% of cases of ACC have been reported in patients younger than 20. It is important to consider differential diagnoses of salivary gland pathology, such as ACC in the young female patient.

155	**CRANIOFACIAL OSTEOSARCOMA: A CASE REPORT.**

Venkatasami M, Harrison K (Department of Pathology, Shrewsbury and Telford NHS Hospitals)

Background: Osteosarcoma is the most common primary bone tumour, with 10% of cases affecting the head and neck. Demographics of head and neck osteosarcoma are different from those elsewhere in the musculoskeletal system. Prognosis is strongly dependent on negative resection margins with the use neoadjuvant chemo-radiotherapy in select cases.

Description: We present a case of a 58 year-old male, non-smoker, presented with a lump in his left upper jaw. Clinical examination revealed an exophytic mass in the upper left tuberosity of the maxilla suspicious for squamous cell carcinoma with no associated lymphadenopathy.

Findings: Radiological investigations revealed a metabolically active left maxillary lesion with destruction of the maxillary sinus. Histological examination of a superficial biopsy initially suggested a proliferative fibro-osseous lesion, however second deeper biopsy was diagnostic of osteosarcoma and referred to sarcoma centre. Immunohistochemistry showed AE1/AE3 and CK(MNF.116) positivity in occasional cells with a ki67 proliferation index of 60%. This was diagnostic of grade 2-3 osteosarcoma. Multidisciplinary management of the patient included neoadjuvant chemotherapy and total maxillectomy and dental prosthetic rehabilitation. Patient is still under follow-up.

Conclusion: This case of primary osteosarcoma of the maxilla is rare and scarcely reported in the literature. Clinical differentials include squamous cell carcinoma, and histological differential includes fibro-osseous proliferative lesions in under sampled cases. It is important to consider osteosarcoma, in destructive lesions as it requires prompt and early specialist intervention to maximise the chances of negative surgical margins, which is the mainstay of treatment for this disease for prognosis.

156	**ROLES OF PROGRAMMED DEATH LIGAND-1 (PDL-1) AND ANTIGEN PRESENTING NATURAL KILLER (AP-NK) CELLS IN PROMOTING IMMUNOSUPPRESSIVE TUMOR MICROENVIRONMENT (TME) IN ORAL CANCER (OC)**

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Background: Response rate for immune checkpoint blockade (ICB) targeting PD-1/PDL-1 in OC is only 15-20%. AP-NK cells co-expressing CD8αα and HLA-DR may contribute to immunosuppression by selectively killing effector T-cells.

Objectives: To analyze the PDL-1 expression, tumor-infiltrating lymphocytes (TIL) and AP-NK cell densities within the TME of OC and its precursors. Immunohistochemical stains for PD-L1 (Clone 22C3), CD3 and CD8/HLA-DR double staining for AP-NK cells were performed on tissue microarrays of OC (n=64) and tissue sections of oral epithelial dysplasias (OED, n=14), proliferative verrucous leukoplakia (PVL, n=6) which subsequently progressed to OC, and oral lichen planus (OLP; n=5).

Results: PDL-1 on TIL showed significant correlation with tumor site, nodal status and survival. The TME of OC showed **39%** were **TIL$^-$/PDL-1$^-$**, **34%** were **TIL$^+$/PDL-1$^-$,14%** were **TIL$^+$/PDL-1$^+$** (ICB responders) and **13%** were **TIL$^-$/PDL-1$^+$**. CD3+ T-cells were significantly lower (p=0.0075) in OED and PVL that subsequently progressed to OC compared to conventional OLP. There was a trend for a higher number of AP-NK cells and percentage of AP-NK/CD3 cells in OED (56.7±10.1; 2%) and PVL (64.5 ± 24.2; 7%) compared to OLP (30.5±7.4; 0.7%). There was no statistically significant correlation between tumor cells PDL-1 expression and age, gender, smoking status, tumor site, histology grade, tumor stage, nodal status, survival and TIL density.

Conclusion: PD1/PDL-1 pathway is not an exclusive mediator of immunosuppressive TME in OC. AP-NK cells offer an alternative mechanism for the failure of antitumor immune response in OC.

157	**BREAKING BAD NEWS IN HEAD AND NECK CANCER PATIENTS**

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Background: Breaking bad news is a distressing situation for both patients and physicians. Physician communication should contemplate patient preferences for an effective process.

Objective: To evaluate the communication process of breaking bad news in head and neck cancer patients according to their perception and satisfaction.

Methods: 100 patients diagnosed with head and neck cancer were interviewed. An instrument based on the BAS survey (Breaking Bad News) was applied to measure perception of the diagnostic information as well as patient satisfaction according to SPIKES protocol standards (Setting up, Perception, Invitation, Knowledge, Emotions, Strategy and Summary). Data was analyzed using *t* students and chi^2. Values $p<0.05$ were considered statistically significant.

Results: 40 women and 60 men with an average age of 57.96 ± 14.84 years were interviewed. Satisfaction percentage was 85%. An excellent / good perception was reported in 87 patients. Physician gender, age or healthcare sector variables were not associated to patient satisfaction and perception. Medical specialty was statistically related to the satisfaction and perception of patients. Best scores were obtained by oncologist surgeons and oral medicine practitioners ($p = 0.001$).

Conclusion: In general, cancer patients were satisfied with professionals' ability to provide adequate information using good communication skills. Physicians who occasionally manage cancer patients were not prepared to deliver diagnosis. The provision of the truth as well as emotional support was highly appreciated by patients.

158	**SALIVARY MICROSECRETORY ADENOCARCINOMA - CASE REPORT OF A RECENTLY DESCRIBED ENTITY.**

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Clinical Presentation: A 35-year-old female presented with a 1.5 cm left hard palate swelling. The incisional biopsy was inconclusive and imaging suggested a non-aggressive lesion with no evidence of bone invasion. The lesion was excised and sent for histopathological examination.

Histology: Histological examination showed a well-defined and unencapsulated multilobular lesion within the connective tissue exhibiting morphological diversity with areas of ductal differentiation, prominent cytoplasmic clearing and areas with an eosinophilic and epithelioid appearance. In places, cords and trabeculae of tumour cells with a prominent microcystic appearance were seen with surrounding fibromyxoid stroma. Focally, the tumour cells showed a spindled and somewhat infiltrative appearance but there was no evidence of single cell filing, perineural or lymphovascular invasion.

Further Investigations: Immunohistochemistry showed diffuse staining for CK7, Cam5.2 and S100 with p63 staining in a significant proportion of the tumour cells. There was no evidence of a biphasic population and other myoepithelial markers i.e. calponin and p40 were also negative. Ki67 staining showed a low proliferation index of approximately 5%. Targeted RNA sequencing showed presence of the *MEF2C-SS18* gene fusion, leading to a definitive diagnosis of salivary microsecretory adenocarcinoma.

Discussion: Salivary microsecretory adenocarcinoma (MA) is a recently described entity characterised by the *MEF2C-SS18* gene fusion. The differential diagnosis includes an adenocarcinoma NOS and the immunohistochemical profile is similar to a polymorphous adenocarcinoma however, both these entities lack the characteristic molecular signature. Only five cases of MA have been reported to date with our case adding to the existing literature for this emerging entity.

159	**AN UNEXPECTED CAUSE OF ULCERATION IN THE ORAL CAVITY**

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Clinical Presentation: A 38 year old male presented to the local Oral and Maxillofacial surgery department with a 3 month history of a persistent ulcer on the left lateral border of the tongue. The ulcer had raised edges but was not painful to palpate. The patient was fit and well and a non-smoker. Clinical photographs and an incisional biopsy were used to investigate the cause.

Histology: Histological examination showed oral mucosa comprising parakeratinised stratified squamous epithelium which centrally was ulcerated. A dense chronic inflammatory infiltrate dominated by plasma cells was identified within connective tissue extending into muscle. Numerous neutrophils were noted in the surface layers of the epithelium. Special stains for fungal hyphae were negative, however immunohistochemistry for T. Pallidum was positive highlighting the spirochete organisms. The lesion was diagnosed as a syphilitic ulcer.

Further Investigations: Following the histological diagnosis the patient was referred to the Genitourinary Medicine department for further investigations including blood serology and definitive treatment.

Discussion: There has been a recent increase in the number of reported cases of syphilis. Primary presentation of the sexually transmitted disease is in the form a chancre, a solitary ulcer, at the site of infection. Although chancres typically present within the genital region, oral presentation is also possible and is perhaps overlooked as a differential diagnosis of ulceration within the oral cavity. We will discuss the case in detail focusing on the clinical presentation, differential diagnoses and treatment rationale.

160	**SPINDLE CELL VARIANT OF RHABDOMYOSARCOMA IN THE ORAL CAVITY: A CASE REPORT**

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Introduction: Rhabdomyosarcoma (RMS) is a malignant mesenchymal tumour derived from skeletal muscle. Head and neck, genitourinary tract and extremities are the most common sites for RMS. Rhabdomyosarcoma is less frequent in oral cavity, which account for only 0.04% of all malignancies in the head and neck. We reported a rare case of spindle cell variant of rhadomyosarcoma arising from right retromolar region in a 14-year old boy.

Case report: A 14-year old boy came presents to the Oral Surgery Department with right facial enlargement that had appeared 7 months earlier with rapid evolution. During extra-oral examination, an extensive swelling on the right side of face was observed with un-defined margin. On intra-oral examination, an exophytic, mixed red and white colored mass observed at the retromolar region. The mass extended posteriorly with involvement of the posterior lateral aspect of hard palate. Computed tomography scan (CT scan) revealed a large expansible lesion occupying the right buccal mucosa, infratemporal, zygomatic and parapharyngeal regions. A facial nerve examination showed weakness at the right marginal mandibular branch and buccal branch.

Discussion: An incisional biopsy was performed. Histopathological examination showed neoplastic spindle cells proliferation arranged in streaming fasiclces with scattered rhabdomyoblast. An immunohistochemistry staining revealed strong positivity for myogenin and desmin. The diagnosis of spindle cell variant of rhabdomyosarcoma was concluded based on the histomorphological features and immunohistochemistry findings.

Conclusion: Recognition of the accurate diagnosis and histological sub-type of rhabdomyosarcoma (RMS) is crucial for the outline of treatment. Early detection is vital for better disease prognosis.

161	**OBJECTIVE MEASUREMENT OF TUMOUR FRONTS IN EARLY ORAL CANCER**

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Introduction: Oral cancer, one of the 10 most common cancers worldwide, has a high mortality rate and the level of disfigurement that survivors suffer gives rise to a considerable global public health burden. Some early stage oral tongue squamous cell carcinomas (OTSCC) show aggressive behaviour and poor prognosis even in cN0 patients. This motivates the search for prognostically relevant features to tailor individual management.

Histopathological reporting of oral cancer is limited by some elements of subjectivity. This study aimed to identify quantitative histological features that allow objective stratification of patients into treatment categories and improve overall patient outcome.

Methods: We conducted a retrospective study of 50 cases of early stage T1/T2 OTSCC. Sections immunostained with anti-pan-cytokeratin antibodies were scanned into digital images to assess the global complexity (fractal dimension) of the tumour epithelial-connective tissue interface (ECTI). The results were related to information from the Royal College of Pathology Dataset for mucosal malignancies of the oral cavity.

Results: At tumour depths over 5.5mm there was a positive correlation between tumour invasion depth and ECTI complexity. There were also significant differences in ECTI complexity between tumours graded as "well", "moderately" and "poorly" differentiated (1.24 ±0.10; 1.32±0.06 and 1.39±0.07 respectively). The ECTI complexity in "poorly" differentiated tumours was significantly lower in the patients with a positive 5-year survival status.

Conclusions: Fractal analysis of the ECTI provided an unbiased descriptor of neoplasm dissociation and invasion pattern modality with potentially useful prognostic value.

162	**BETEL QUID (PAAN) CHEWING & ORAL EPITHELIAL DYSPLASIA IN LAHORE – AN ANALYTICAL STUDY**

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Background: Betel quid (locally – paan) is widely chewed habitually in Pakistan and South and Southeast Asia. It is hand-rolled at paan stalls by smearing a betel leaf (from Piper betel) with slaked lime, catech paste, chopped areca nut, a variety of condiments and flavouring agents.

Paan is considered a Group 1 carcinogen for humans by International Association for Research on Cancer (IARC). It is one of the major causes of oral cancer in the regions. The Reactive oxygen species (ROS) released during chewing, can initiate carcinogenesis by inducing mutagenesis.

Objectives: The current study was performed to determine frequency of epithelial dysplasia among habitual paan chewers. It also calculated the association between the quantity and quality of paan chewing and severity of oral epithelial dysplasia.

Methods: This was a cross-sectional analytical study. Cytological smears from 300 habitual paan chewers were collected. After fixation with alcohol, smears were then air dried, stained with Haematoxylin, Eosin, Giemsa and Pap's Stain. The material was then examined under an optical microscope. Epithelial dysplasia was identified and graded using the method of Speight.

Results: Epithelial dysplasia was observed in 57.7% of the habitual paan chewers, which was significantly associated with number of paans consumed per day as well as duration of paan consumption. These variables were positively correlated with grading of epithelial dysplasia.

Conclusions: The study concludes that epithelial dysplasia was present in majority of habitual paan chewers in Lahore city. The correlation between amount of betel quid chewing and severity of epithelial dysplasia means the effect is dose-dependent.

163	**NOVEL DLX3 VARIANTS IN AMELOGENESIS IMPERFECTA WITH ATTENUATED TRICHO-DENTO-OSSEOUS SYNDROME**

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Background: Variants in *DLX3* cause tricho-dento-osseous syndrome (TDO, MIM #190320), a systemic condition with hair, nail and bony changes, taurodontism and amelogenesis imperfecta (AI), inherited in an autosomal dominant fashion. Different variants found within this gene are associated with different phenotypic presentations. To date, six different *DLX3* variants have been reported in TDO. The aim of this paper is to explore and discuss three recently uncovered, new variants in *DLX3* and their resulting phenotypes.

Objectives: To identify new variants associated with AI to increase accuracy of genetic testing and elucidate the roles and functions of genes involved in amelogenesis. In meeting this, three new variants within *DLX3* have been identified to be associated with AI.

Methods: Whole-exome sequencing identified a new *DLX3* variant in one family, recruited as part of an ongoing study of genetic variants associated with AI. Targeted clinical exome sequencing of two further families revealed another new variant of *DLX3* and a complete heterozygous deletion of *DLX3*. For all three families, the phenotypes consisted of AI and taurodontism, together with other attenuated features of TDO.

Conclusions: c.574delG p.(E192Rfs*66), c.476G>T (p.R159L) and a heterozygous deletion of the entire *DLX3* coding region were identified in our families. These previously unreported variants add to the growing literature surrounding AI, allowing for more accurate genetic testing and better understanding of the associated clinical consequences.

164	**INCORPORATION OF DIFFERENTIATED DYSPLASIA IMPROVES PREDICTION OF ORAL LEUKOPLAKIA AT INCREASED RISK OF MALIGNANT PROGRESSION.**

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Background: Oral leukoplakia is the most common oral potentially malignant disorder with a transformation rate into OSCC of 1-3% annually. WHO defined dysplasia is an important histological marker for malignant transformation risk assessment, but is not sufficiently accurate to personalize treatment and surveillance. Differentiated dysplasia, known from differentiated vulvar intraepithelial neoplasia, is hitherto not used in oral dysplasia grading.

Objective: We hypothesized that assessing differentiated dysplasia besides WHO defined (classic) dysplasia will improve oral leukoplakia malignant transformation risk assessment.

Methods: We investigated a retrospective cohort consisting of 84 oral leukoplakia patients for dysplasia and the expression of CK13 and CK17, known to be dysregulated in dysplastic vulvar mucosa.

Results: In dysplastic oral lesions, differentiated dysplasia is as common as classic dysplasia. In 25/84 (30%) patients, SCC of the upper-aerodigestive tract developed during follow-up. Considering only classic dysplasia, 11/56 (20%) patients with non-dysplastic lesions progressed. With the incorporation of differentiated dysplasia, only 2/30 (7%) patients with non-dysplastic lesions progressed. Risk of progression increased from 3.26 (HR, p=0.002) when only classic dysplasia is considered, to 7.43 (HR, p=0.001) when classic and differentiated dysplasia are combined. Loss of CK13, combined with presence of dysplasia, is associated with greater risk of malignant progression (p=0.006).

Conclusions: This study demonstrates that differentiated dysplasia should be recognized as a separate type of dysplasia and that its distinction from classic dysplasia is of significance since it is a strong (co)prognostic histopathological marker for oral malignant transformation. In oral lesions without dysplasia and retained CK13 staining the risk for progression is very low.

165	**UNUSUAL LIP TUMOURS: A CASE SERIES**

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Background: The majority of isolated persistent lip swellings are attributed to mucoceles. However, minor salivary gland neoplams must be included in the differential diagnoses, particularly with upper lip swellings. Benign pleomorphic adenomas are the most frequent labial mucosa neoplasm, however other benign and malignant tumours may also develop in the lips.

Objective: To demonstrate the rare and unusual neoplasms that may present in this area.

Methods: 5-year retrospective review of Oral Pathology reports identified 8 unusual neoplasms within the labial mucosa. Clinical case note review was conducted to identify patient demographics, presenting complaints, medical and social histories, diagnoses and treatment.

Results: The patients were aged from 8 to 73-years-old. Clinically all lesions were described as well-defined submucosal swellings, however the size ranged from 2mm to 15mm. Common clinical differential diagnoses included mucocele and lipoma. The histopathological diagnoses included 2 cases of schwannoma, and 1 case each of basal cell adenoma, papillary cystadenoma, canalicular adenoma, granular cell tumour and myxoid neurothekeoma. 1 malignant secretory carcinoma was also identified in a child. All lesions were excised and monitored post-operatively, with the malignant neoplasm requiring a second surgery to gain complete excision.

Conclusions: This review demonstrates the interesting and unusual pathologies that may arise within the labial mucosa. It highlights the importance of performing biopsy of persistent swellings in both adult and paediatric patients to confirm the diagnosis. Although rare, malignant minor salivary gland tumours can occur within labial mucosa and early histopathological diagnosis and surgical removal can significantly improve prognosis.

166	**DENDRITIC CELL NEUROFIBROMA WITH PSEUDOROSETTES: A CASE REPORT AND LITERATURE REVIEW** Wright TA, (Division of Oral & Maxillofacial Pathology, Tufts University School of Dental Medicine) **Background:** Dendritic cell neurofibroma with pseudorosettes, first reported in 2001, is a benign peripheral nerve sheath tumor found in cutaneous tissues with distinct histopathology and immunohistochemical profile. Five cases have been reported in the oral cavity. **Objective:** The sixth case of dendritic cell neurofibroma with pseudorosettes in the oral cavity with clinical and histopathologic findings and literature review are discussed. **Findings:** 72-year-old male presented with a 6 mm sessile soft tissue mass in the left soft palate. Clinical impression was fibroma and an excisional biopsy was performed. Histopathology demonstrated an unencapsulated, well-circumscribed neural tumor composed of two cell populations arranged around acellular areas focally forming pseudorosettes. One cell population stained strongly positive for S100 and contained nuclei ranging in appearance from curvilinear to round; some of these cells resembled lymphocytes. The other cell population stained strongly positive for S100 and CD57 and contained vesicular nuclei and pseudoinclusions. Final diagnosis of dendritic cell neurofibroma with pseudorosettes was rendered based on histological examination with immunohistochemical analysis. **Conclusion:** The sixth case of dendritic cell neurofibroma with pseudorosettes in the oral cavity was identified based on histopathology and immunohistochemical profile. Five previous cases occurred in the dorsal tongue and buccal mucosa while our case occurred in the soft palate. Demographics of age and gender were similar for all six cases. This rare entity can mimic other soft tissue lesions clinically including other benign peripheral nerve sheath tumors. Accurate diagnosis can render proper treatment for the patient.

167	**RECURRENT JUVENILE PSAMMOMATOID OSSIFYING FIBROMA: A CASE REPORT.**

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Background: JPOF is a rare benign fibro-osseous lesion with a mean patient age of 16-33 years. JPOFs present as bony expansion, invasion and destruction of surrounding tissue.

Objective: Recurrent Juvenile Psammomatoid Ossifying Fibroma: a case report.

Brief Case Report: Here we present a case of recurrent JPOF. An 8-year-old female child reported to our department with the chief complaint of gradual painless swelling in the chin. The oral examination revealed a hard and nontender swelling in the anterior region of the mandible. The orthopantomogram revealed a radiolucent mass with ill-defined borders. The computed tomography scan showed a nearly round expansile lesion, which was multilocular radiolucency, in size of 4.3 cm * 3.0 cm and with an indefinite border. Postoperative histopathological diagnosis was reported as Cemento-ossifying fibroma.

Before reporting to us the patient was admitted to other hospital two years ago with painless swelling in the similar position of the mandible. The clinical manifestations were similar to this time. Compared to this episode, the lesion scope was small, in size of 2.0 cm * 3.0 cm. Postoperative histopathological diagnosis was reported as odontogenic myxoma at that time.

Discusion: Two years ago, histopathology showed a fibro-cellular stroma with myxoid areas and no calcifications were observed. For this episode, microscopic examination revealed numerous spherical ossicles resembling psammoma bodies in the cellular fibrous tissue, which are pathognomonic histopathologic feature of JPOF.

JPOFs present aggressive local growth and high risk of recurrence. Therefore, accurate pathological diagnosis and complete surgical resection are required.

168	**NERVE SHEATH MYXOMA OF THE ORAL CAVITY**

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Introduction: Nerve sheath myxomas are rare, benign neoplasms of nerve sheath origin. They are often found at the head and neck region arising from the dermis and subcutaneous tissues. However, its presentation in the oral cavity is rather unusual.

Case summary: We report a case of a 33 year-old lady who presented with a twelve months history of an extensively large, firm swelling in left buccal space extending to the retromolar area resulting in a slight facial asymmetry. A well-defined radioopaque mass was seen on the MRI images. The diagnosis of oral nerve sheath myxoma was established, adding to the literature its incidence and subsequently improves our understanding regarding its clinicopathological features, histogenesis and distinct entity than other oral lesions which can mimick its presentation.

169	**A CLINICOPATHOLOGIC STUDY OF 144 ORTHOKERATINIZED ODONTOGENIC CYSTS**

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Background: Orthokeratinized Odontogenic Cyst (OOC) is an uncommon intraosseous cystic lesion and distinguished as an individual entity of odontogenic cysts in the new WHO classification.

Objectives: To analyze the clinicopathologic features of OOC in a Chinese population.

Methods: All cases reported as OOC and OKC were reviewed from the files of Department of Oral Pathology, Peking University School and Hospital of Stomatology from 2000 to 2018. We identified 144 OOC cases and analyzed clinical and pathological information.

Results: In the present study, we presented the largest series of OOC cases. There were 98 male and 46 female patients with a peak incidence in the third to fourth decades. 136 cases (94.4%) were solitary and 8 cases (5.6%) were multiple. The most common sites were in the mandibular molar and ramus region. Radiographically, 12 lesions showed multilocular radiolucency with bone destruction while others were unilocular. All the cases were primary. Follow-up of 116 patients, 114 were treated by simple enucleation, revealed no recurrence over a period of 0.5-17 years after surgery. Compared with OKC, OOC revealed different histological and immunohistochemical features.

Conclusions: OOC is clinicopathologically distinct from OKC and should constitute its own clinical entity according to histologic features and biologic behavior. And further study is needed to investigate the pathogenesis and mechanism of OOC

170	**A CASE REPORT OF CARCINOMA EX BASAL CELL ADENOMA OF THE PAROTID GLAND**

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Background: Basal cell adenocarcinoma (BAC) is a rare salivary gland malignancy that occurs primarily in the parotid gland of elder individuals (median 60 years old) without gender predilection.

Objectives: To report a case of intracapsular malignant transformation of basal cell adenoma (BCA) into BAC, thus to provide a reference for clinical work.

Method: A case of carcinoma ex BCA of the parotid gland was retrospectively analysed.

Results: A 63-year-old female patient presented with a mass on the right side of the lower ear came to our hospital. The clinical diagnosis tended to be a benign tumor. She received the operation, and the tumor underwent pathological examination. Microscopically, the tumor essentially showed characteristics of BCA, comprised of groups of basaloid cells. However, the tumor cells infiltrated the capsule, and malignant transformation occurred in some areas. The final diagnosis was basal cell carcinoma ex BCA. BAC is a malignant tumor composed of basal cell-like cells, which is similar to BCA in cytology and histopathology. The key point of differential diagnosis is whether the atypia of tumor cells and nuclear mitosis are easy to be seen and whether there is clear invasive growth.

Conclusion: Difficulty can be encountered in clinical manifestation and histologically in differential diagnosis of lesions like BCA from BAC. As seen in the present case, the patient showed intracapsular malignant transformation of BCA into BAC. In the diagnosis of parotid masses in elder patients, attention should be paid to the differentiation between BCA and BAC.

171	**FROM A NON-SPECIFIC INFLAMMATORY-LIKE GINGIVAL LESION TO A RAPIDLY PROGRESSING ORAL SQUAMOUS CELL CARCINOMA: A CASE OF DECEPTIVE PRESENTATION OF ORAL CANCER**

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Introduction: White/red lesions, exophytic masses with or without ulceration are well recognized typical presentations of oral squamous cell carcinoma (OSCC). Rarely, clinical characteristics may mimic benign lesions

Objective: To report an unusual case of OSCC of anterior maxillary gingiva and hard palate, with an initial non-specific clinical and histological presentation mimicking benign inflammatory lesions.

Case presentation: A 58-year-old otherwise healthy woman was referred with mild pain and a reddish, papillary gingivo-palatal inflammatory-like lesion, of 6 months duration. Medications, systemic medical conditions, tobacco-use and parafunctional habits that could generate the appearance were excluded. Radiographs did not reveal any bone involvement. Repeated periodontal treatment, improvement of oral hygiene, topical applications of disinfectant, antifungal and corticosteroids all failed to yield any improvement. During a period of 18 months, three biopsies were taken from the affected gingiva, showing only benign epithelial hyperplasia with dense chronic inflammation, devoid of any evidence for malignancy. Following rapidly progressing tooth mobility of the lateral incisor, concomitant with accelerated overgrowth of the anterior palatal gingiva, dental radiographs were repeated, and computed tomography performed. Both revealed extensive osteolytic lesion in the pre-maxilla. A new biopsy, taken from the affected gingiva and adjacent maxillary alveolar bone yielded a diagnosis of OSCC. Treatment included resection of the pre-maxilla and floor of the nose, with bilateral neck dissection.

Conclusion: This case emphasizes the possibility of deceptive initial appearance of OSCC, the sudden burst and rapid disease progression and the importance of close follow-up of unusual non-specific inflammatory-like processes in the oral cavity.