immediate adhesive properties (μTBS and μSBS) of enamel and dentin. The immunoexpression was performed with immunofluorescence confocal microscopic analysis.
Forty caries-free extracted third molars were divided into eight groups according to the factors: radiation dose (0, 20, 40, and 70Gy) for the experiments. Data from immunofluorescence was analyzed descriptively and adhesive properties were analyzed using two-way ANOVA and Tukeys test.

Findings: The alterations in the immunoexpresion of collagen IV and MMP20 is directly associated with the dose of radiation, showing increasing levels of MMP20 and decreasing levels of collagen IV in the most irradiated teeth.When radiation doses were applied between 40 to 70 Gy, the adhesive values were significantly lower for both strategies in the two tests performed.

Conclusion: High doses of radiation above 40 Gy affect the expression of collagenIV, MMP20 and immediate adhesive proprieties on dentin and enamel. The information obtained about the altered expression of collagen IV and MMP20, and the adhesive properties in dental irradiated tissue is crucial to understand the process of radiation-related caries and the restorative treatment of these patients.

THE PARARADICULAR RADIOLUCENCY WITH VIABLE PULP: CLINICOPATHOLOGIC FEATURES OF 21 CEMENTAL TEARS.

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Cemental tear is considered to be rare, with few case reports and no large series published.

Objective: To investigate and characterize the disease from a review of 21 new cases.

Methods: This was a retrospective review of consecutive cases collected from patient panels of the investigators.

Results: Twenty-one cases were identified during a 6 year period. All lesions presented with pain. Nineteen were vertical radiolucencies along the root of a vital or endodontically treated tooth; the remaining 2 were periapical only. Radiolucencies were: D-shaped (40%); thin regular lines (25%); thick, irregular lines (15%); J-shaped (15%). All showed focal destruction of the lamina dura, with 66.7% showing extension into the medullary bone. Maxillary incisors were most often (46.2%) affected. Histopathologic diagnoses were chronic fibrosing osteomyelitis (76.2%) or intramedullary fibrous scar (23.8%), all associated with embedded cementum fragments. Five associated teeth were also examined: all showed tears beneath remaining cementum. Four cases were successfully treated with curettage; endodontic therapy was mistakenly performed in 8 cases.

Conclusions: Cemental tears produced symptomatic, localized chronic inflammation characterized by a vertical radiolucency adjacent to a root. These lesions may not be as rare as previously thought and extraction may not be the best treatment.

A PILOT STUDY OF SELECT CELL CYCLE MARKERS IN GLANDULAR ODONTOGENIC CYSTS.

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Objectives: Glandular odontogenic cysts (GOCs) and dentigerous cysts (DCs) differ significantly in their biologic behavior. One third of GOCs have been reported to recur whereas recurrence is rare in DCs. Due to the apparent growth potential of GOCs, we evaluated and compared the presence of cell cycle markers such as cyclin D1, p53, p16, p27, Rb, and BCL-2.

Findings: Eight GOCs and a control group of three DCs were included in the pilot study. All GOCs possessed seven or more of the required features. Interestingly, we detected strong expression of Cyclin D1, a regulatory protein required for cell cycle progression, within the basilar and parabasilar layers of the cyst epithelium for GOCs and scattered positivity correlating with the level of inflammation in DCs. Expression of tumor suppressor proteins, p27 and p16, were notably different between the two cysts. For p16, the superficial layers were strongly and diffusely positive in GOCs while the basilar and parabasilar layers were essentially negative. DCs showed a patternless distribtion of p16 staining with variable intensity throughout the epithelium. The majority GOCs exhibited full thickness expression of p27 whereas DCs demonstrated scattered and weak positivity. With p53, BCl-2, and Rb, minimal appreciable difference was noted in the staining pattern and intensity between GOCs and DCs.

Conclusions: Our results revealed differential staining patterns between DCs and GOCs for the following cell cycle markers: Cyclin D1, p16, p27. Based on our staining pattern, we also hypothesize that the proliferation potential of the basal and parabasilar layers of the epithelium in particular contribute to the growth and high recurrence rate for GOCs. Our findings suggest that cell cycle disturbances exist in GOCs and may contribute to the aggressiveness of their biological behavior. Additional studies with an expanded cohort are required to confirm these initial findings and provide further insights.

MINIMALLY-INVASIVE ORAL EXFOLIATED CELLS STUDY FOR PREMALIGNANT LESIONS USING RAMAN MICROSPECTROSCOPY.

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Squamous cell carcinoma of the oral cavity ranks as the 15th most common cancer in the world and the 10th most frequent cancer in males. The present study was undertaken for the development of new methods for early oral cancer detection based on Raman microspectroscopy of exfoliated cells. Exfoliated oral cells were collected by brush biopsy from patients attending Dublin Dental Hospital Dysplasia Clinic (25) and from healthy volunteers (25). Samples of exfoliated cells from normal mucosa and from pre-malignant lesions were collected using an endocervical cytobrush and placed in ThinPrep vials. Slides were prepared using the Thinprep2000 processor with the aim of forming a monolayer of cells for analysis. Raman spectra were acquired from the nucleus and cytoplasm of each cell using an XploRA confocal Raman instrument (HORIBA JobinYvon). As source, a 532 nm laser was focused by a 100X objective onto the sample and the resultant Raman signals were acquired in the 400 to 1800 cm−1 region. Glass spectral contamination was removed using extended multiplicative signal correction Following pre-processing, spectra were subjected to principal component analysis

(PCA) and principal component-linear discriminant analysis (PC-LDA). The results show that Raman spectroscopy coupled with PCA could differentiate the nucleus and cytoplasm of the cell, the PC loadings showing that the cytoplasmic regions are dominated by protein bands while thenuclear regions are dominated by DNA bands. Furthermore, patient samples were discriminated from healthy volunteers based on DNA and lipids bands inthe PC loadings. Sensitivities of 91% and 97% and specificites of 98% and 89% were achieved for the cytoplasm and nucleus respectively, using PC-LDA. Thus, the findings of the study support the potential of Raman microspectroscopy for providing molecular level information from oral exfoliated cells and the future potential for screening of minimally invasive brush biopsy samples for oral pre-cancer and cancer.

HYPERKERATOSIS OF THE ORAL MUCOSA RELATED TO USE OF GORO: A CASE REPORT.

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Background: Hyperkeratosis is a frequent finding in oral mucosa commonly associated with smokeless tobacco, trauma and sometimes idiopathic as in leukoplakia. Goro (kola nut) is a caffeine-containing nut of evergreen trees, available in various genera most commonly Cola acuminata and Cola nitida. It contains caffeine (2-4%), kolanin and theobromine in which all provide euphoric and mental stimulation properties to human subjects. Consumption of Goro is a popular habit in African communities. To the best of our knowledge, we are reporting the first case of hyperkeratosis of the oral mucosa induced by Goro.

Case description: A 22 year-old man attended the dental clinic at King Abdulaziz University – Faculty of Dentistry for dental consultation and treatment. Patient had no medical conditions and denied taking any medication or allergies. In addition, he had no significant family history and never smoked or consumed alcohol. However, he has been chewing Goro five times/day for around 10 years. Extraoral examination, was insignificant. Intraoral examination was significant for a smokeless tobacco keratosis-like lesion, greyish-white, velvety folded plaque on lower vestibule where he chew and pack Goro. Incisional biopsy of the lesion was obtained and showed hyper-parakeratosis with otherwise normal epithelium. The connective tissue was fibrovascular with no inflammation, or hyalinization. The case was managed with patient education with no treatment. The patient was followed up for a year without any changes.

Conclusion: This is the first report of a hyperkeratosis of oral mucosa induced by Goro. Even with clinical presentation matching smokeless tobacco keratosis, there were some histological differences. As Goro is mainly a caffeine-containing fruit, it is reasonable to consider Goro-induced keratosis a reactive lesion with no potential for malignancy. Close follow up and habit cessation is advised pending more data. Further longitudinal studies is needed to better understand this lesion pathogenesis.

LANGERHANS CELLS IN THE EPITHELIUM OF UNICYSTIC AMELOBLASTOMAS.

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Background and Objectives: Langerhans cells (LC's) are specialized dendritic cells known to colonize epithelial lined surfaces. Few studies relating to the distribution of LC's in odontogenic tumors and especially ameloblastomas are available and the influence of inflammation on the presence of these cells in odontogenic tumors is unclear. This study investigate the number of LC's in a series of unicystic ameloblastoma using two immunohistochemical stains, Langerin and S100. The association between the presence of LC's and the degree of inflammation was also investigated.

Methods: Formalin fixed, paraffin imbedded tissue blocks of thirty cases of unicystic ameloblastoma were retrieved from the archives of the department of Oral Pathology. A 4μm tissue sections in each case was stained with S100 and Langerin antibodies respectively. The average number of LC's/1mm of cyst wall were calculated from 10mm of cyst or the entire epithelial lining if less was available. The nature and density of inflammation was scored and compared to the number of LC's present.

Results: LC's were detected in 21 (70%) and 15 (50%) unicystic ameloblastomas stained with Langerin and S100 antibodies respectively. A statistically significant difference was noted in the number of LC's on Langerin (mean = 0.66/mm) compared to S100 (mean = 0.31/mm) (P=0,014). 26/30 cases (86.67%) were associated with inflammation distributed either diffusely (60.00%) or focally (26.67%) in the wall. The degree or type of inflammation did not have any influence on the presence or numbers of LC.

Conclusion: LC's are present in the epithelial lining of the majority of unicystic ameloblastomas irrespective of the type or degree of inflammation present in the wall. Their presence may be due to their epithelial tropism or as part of the normal anti-tumour immuno-surveillance. The exact role of LC's and what attracts them should be investigated on molecular level.

THE ORIGINS OF ODONTOGENIC KERATOCYST BASED ON THE DISTRIBUTION OF MELANOCYTES.

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Objectives: Melanocytes are pigmented-producing cells and derived from the neural crest. Melanin pigmentation is widely distributed in the skin and often in oral mucosa, but normally not existing in bone tissue. However, melanin pigmentation is detected on rare occasions with odontogenic lesions in the jaw bones, especially odontogenic keratocysts (OKC). Moreover, development of the tooth germ is originated from the neural crest, but elimination or expression of neural crest cells with odontogenic lesions is not obvious. The present study aimed to consider the origins of OKC based on the distribution of melanocytes in OKC.

Findings: One hundred and ten OKC were used. Eighty-eight cases showed sporadic type (SPO), and 22 cases involved basal cell nevus syndrome (BCNS). All samples were divided into 54 cases of juvenile group (0-29 years old) and 56 cases of advanced group (30-70 years old). Melanocytes were detected using Melan-A and HMB45 immunohistochemical stainings, and melanin pigmentation was detected using Schmorl's method. The positive rate of Schmorl's reaction, Melan-A and HMB45 staining were significantly higher in juvenile group than