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89 Classification and analysis of odontogenic keratocyst by type of keratin. V VIPISMAKUL*, A SUTTIWARAPIRAK, S WANGDUNLAYAKITTI (Faculty of Dentistry Chulalongkorn University, Bangkok, Thailand)

This study was aimed to analyze and classify the odontogenic keratocyst according to the type of keratin. The data were collected from the biopsies of the Department of Oral Pathology, School of Dentistry, Chulalongkorn University from 1975 to 2000. Two hundreds and nine cases of odontogenic keratocyst were recruited and reviewed by the light microscope based on the criteria of the World Health Organization. The cysts were classified and results revealed that 190 cases (90.91%) were parakeratinized whereas 19 cases (9.09%) were orthokeratinized. The recurrence of the cyst occurred in 17 cases (8.95%) of parakeratinized type. No recurrence was seen in the orthokeratinized type. Seventeen cases (8.95%) of parakeratinized type associated with basal cell nevus syndrome were found. Multiple odontogenic keratocyst without basal cell nevus syndrome was involved in 10 cases (5.26%). No case of orthokeratinized type was seen associated with syndrome and multiple cysts. It was concluded that of the odontogenic keratocyst, parakeratinized type was more aggressive than orthokeratinized type and recurred more frequently. This study emphasized the importance of distinguishing between the parakeratin and orthokeratin variants of odontogenic keratocyst.

90 Using Conventional and Digital Radiograph to Determine Curved Root Length. S.CHINAKANCHANADIT, A. SAETANG, S. INCHAN, B. MOONSATAN, S. WONGSALAP, S. PRAMOJANEE*, P.CHOOWERA (Department of Oral Radiology, Faculty of Dentistry, Chiang Mai University, Chiang Mai, Thailand)

The aim of this study was to compare the accuracy of curved root length determination between conventional and digital radiograph. Thirty single human extracted teeth with root curvature between 20 to 36 degree (moderate curve from Schneider method) were examined for their tooth length using four methods: 1.) tooth length measurement on a conventional E-speed film 2.) tooth length measurement directly onscreen digital images (DenOptix™ system, Milano, Italy) with the software (VixWin™2000, Milano, Italy) that allowed observers to measure the tooth length using two clicks 3.) three clicks 4.) multiple number of clicks. The length of teeth was assessed by four observers: two endodontists and two radiologists. Differences between actual length and the length obtained from all radiographic measurement were tested with paired t-test and ANOVA (p=0.01). Compared to the actual length, measurements from all radiographic methods were overestimation. However, there was no significant difference between the actual length and the length measured either from the conventional or digital radiographs. Also, no significant difference was found between the measurement from the conventional and digital radiographs. Regarding the number of clicks, no significant difference was found between using two, three, or multiple clicks. However, the measured length using two clicks was most likely close to the actual length. In conclusion, preoperative onscreen digital images with the computer software can be used to estimate curved root length in endodontic treatment comparable to conventional radiographs.

91 Dental knowledge of medical practitioners and caregivers in Macau SAR, China. I WU* and NM KING (University of Hong Kong, China)

Medical practitioners can theoretically play an important role in the counseling of the caregivers of pre-school children about dental health and the referring these children for dental treatment. The aim of this study was to investigate the dental knowledge and attitudes of medical practitioners and the caregivers of pre-school children in Macau, then to determine if there were any associations with dental caries in the children under their care. Thirty medical practitioners working in the public health centers where an infant vaccination program is provided were asked to complete a questionnaire. The caregivers of 353 (0-4 years) children from seven nursery centers were invited to complete a questionnaire. Their children were examined with a torch and disposable mouth mirror; cavitation was charted as dental caries. The association between dental caries and the factors being investigated was analyzed using the Chi-square test in the SPSS software package. The medical practitioners had different opinions about the practices of bottle-feeding. Generally the dental knowledge and attitudes of the medical practitioners was found to be much better than that of the caregivers. Certain items of knowledge, such as, "acid can cause caries", "fluoridated water can prevent caries" and "primary teeth play a role in the development of the permanent teeth" were significantly associated with the occurrence of caries in the children under their care (p<0.05). The medical practitioners in Macau did not seem to convey their dental knowledge to the caregivers prior to the onset of caries in the children. Those caregivers who were more knowledgeable about caries development might be more cautious about their children's oral condition.

92 The Association of Deep Overbite with Mandibular Movement Velocity. Ching-Zong WU, Shu-Cheng LIN*, I-Yen Kuan, Pin- Zong Huang. Taipei Medical University School of Dentistry and TMUH dental department, TMUH-Wang Fong, Taipei,Taiwan.

The relationship between the morphologic characteristics of facial skeleton and the function of the masticatory system has been studied extensively. Mandibular movement velocity is one of the parameters used to evaluate the mandibular function. However, the relationship of the overbite status with mandibular movement velocity is not clear. The purpose of this study is to investigate the association of mandibular movement velocity with different types of dental malocclusion especially the anterior guidance pattern. One hundred twenty seven young adults (84 males and 43 females age ranges from 21 to 26 years old) were observed by using Myotronics Kinesiograph K-6 model for the measurement o jaw motion velocity. Each subject was instructed to open and close the mouth as wide and as fast as possible. Five consecutive open-close strokes were recorded and processed for evaluating the following parameters (1) the maximal opening and closing velocity, (2) the average opening and closing velocity and (3) the maximal velocity of terminal tooth contact. Dentofacial morphology was evaluated by lateral cephalometric radiograph and dental cast with the association of the mandibular movement velocity by ANOVA. Analysis of data indicated that the deep overbite subjects have slower closing mouth velocity (P<0.05). In conclusion, Anterior tooth alignment might have some influence on the mandibular movement velocity. This study is supported in part by NSC -90-2815-C-038-007-B.

93 Effects of combining antibacterial agents with a dentine conditioner. M.G. BOTELHO Faculty of Dentistry, University of Hong Kong, Hong Kong

Antibacterial agents: chlorhexidine hydrochloride (CX), benzalkonium chloride (BC), cetrimide (CT), cetylpyridinium chloride (CP) and sodium hypochlorite (SH) were prepared in 1% (w/v) concentrations of sterile water and polyacrylic acid Dentin Conditioner (GC Corporation, Tokyo, Japan). Dentin Conditioner was also prepared to pH 4.5 and pH 7.5. The control was pH 2.6. These solutions were tested against three bacteria: *Actinomyces naeslundi, Lactobacillus casei subsp casei,* and *Streptococci mutans* in an agar diffusion test. After inoculation of TSA agar plates, 25 μls of the test solutions were placed into 5mm wells. After incubation the zones of inhibition were measured and a 5mm sterile steel punch was used to remove a plug of agar adjacent to the well and transferred onto a fresh inoculated agar plate. The zones of inhibition was measured again and the experiment repeated once more. The data was cumulatively combined over three test intervals. ANOVA showed significant differences between the groups (p< 0.016 -adjusted for multiple testing-) The HY-solution, control and pH adjusted Dentin Conditioners showed virtually no inhibitory effect after the first test period. A paired T-test showed that all the antibacterial solutions were significantly more inhibitory than the antibacterial conditioners (p <0.016) apart from CP-solution against *S. mutans.* For the cumulative results of all three test bacteria, CT-conditioner showed the greatest inhibtion (p<0.016). The CX-conditioner showed the second greatest inhibitory effects, however, against the *Lactobacilli* strain it was not significantly different to the CP-conditioner (p>0.016). When tested against *S. mutans* and *A. naeslundii,* CP-, HY-, and BC-conditioners did not show significantly greater differences to the control at any of the cumulative test periods (p>0.016). Against the *Streptococcus* and *Actinomyces* strains, the more acidic Dentin Conditioners showed greater inhibitory effects while against the acidophilic *Lactobacilli* strain the Dentin Conditioner pH 7.5 was most inhibitory. The combination of antibacterials with polyacrylic acid shows sustained antibacterial effect. CRCG Grant 373-252-000990

94 IL-1β, TNF-α and IL-10 mRNA Expression in Smokers and Non-smokers with Chronic Periodontitis. L.J. JIN*,L.K. CHAN, W.K. LEUNG and E.F. CORBET (Faculty of Dentistry, University of Hong Kong, Hong Kong)

Tobacco smoking is a well-established risk factor for periodontal disease. This pilot study was to examine the mRNA expression profiles of three selected pro- and anti-inflammatory cytokines in smoking and non-smoking subjects with chronic periodontitis. The participants were 5 smokers and 7 non-smokers with advanced chronic periodontitis. Soft tissue biopsies were collected from unresolved deep pockets and adjacent non-pocket, clinically healthy gingiva during periodontal surgery. The samples were evaluated for IL-1β, TNF-α and IL-10 mRNA expression by Quantikine* mRNA quantitation kits and the results were presented as amol/ g total RNA. The detection frequency for the target cytokine mRNA expressions at pocket sites (probing depth 6-10mm) and the adjacent non-pocket sites (probing depth 2-3mm) was as follows - pocket/non-pocket: 100%/100% for IL-1β, 83.3%/85.7% for TNF-α and 91.7%/100% for IL-10. Overall, smokers exhibited higher IL-1β and TNF-α mRNA expressions than non-smokers. The relative mRNA expression ratio of IL-1β to IL-10 was 4-fold higher in smokers than in non-smokers. At the pocket sites, smokers showed higher IL-1β (9.37±7.25 *vs.* 4.86±2.96) and TNF-α (5.03±2.34 *vs.* 3.86±1.57) mRNA expressions than non-smokers. At the non-pocket, clinically healthy sites, higher IL-1β expression was also found in smokers (5.42±3.76) than in non-smokers (1.38±0.35). The relative mRNA expression ratio of IL-1β to IL-10 was 10-fold higher in smokers than in non-smokers. In non-smokers, the mRNA expression of IL-1β was strongly correlated with IL-10 (r=0.75, p<0.01), while no similar correlation was found in smokers. This study showed that IL-1β and TNF-α mRNA expressions appeared to be upregulated in unresolved periodontal lesions of smokers. Supported by the Hong Kong Research Grant Council, Grant HKU 7310/00M.

95 The reduction of *E. feacalis* after using rotary instruments in root canal preparation compared with hand instruments. P KHONGKHUNTIAN, P NARAPRASERTKUL, R PONGPANICH, T SRISUWAN*, and S SOOKKEE (Restorative Department, Faculty of Dentistry, Chiangmai University, Chiangmai, THAILAND)

One of the main objective of the root canal preparation in Endodontic treatment is to remove the bacteria mechanically from the infected root canals. The purpose of the study was to compare the bacterial reduction ability of three root canal preparation instruments, two rotary root canal preparation instruments; Profile* and GT™ file, and hand file root canal preparation instrument. Seventy human lower molar distal roots and upper palatal roots were used in the study. The roots were divided into six groups randomly. Each experimental group contained fifteen roots. The fifth and sixth group contained five root canals each, and served as positive and negative control. First group used Profile* as the root canal preparation instrument, second group used GT™ file, third group used hand file, and fourth group used only normal saline solution as irrigation without mechanical root canal preparation. Prior to mechanical root canal preparation, each root canal were filled with *E. feacalis* (Mcfarland number two; 2.85x10⁸ CFU/ml) using fresh brain heart infusion broth as the culture medium and incubated for twenty-four hours. After that the four experimental root canals groups were prepared as described, the experimental roots were incubated again for twenty- four hour, the serial dilution were done and the bacteria were subculture into Mitis-Salivarius agar and incubated for twenty four hours, the colony of bacteria were counted in colony forming unit per milliliter (CFU/ml). The percentage of bacterial reduction was calculated. The results showed that the average percent of bacterial reduction in Profile* group, GT™ file group, Hand file group, and irrigation only with normal saline solution are 99.99%, 99.43%, 85.04%,and 16.00% respectively. There is statistically significant of bacteria reduction between mechanical prepared root canals and non-mechanical prepared root canals (p<0.001). There is no statistically significant of bacteria reduction between Profile* and GT™ file. However, there are statistically significant between Profile* and Hand file, GT™ file and Hand file (p<0.001). It can be concluded that using mechanical root canal preparation can reduce more than 80% of the bacteria from infected root canals and using Profile* or GT™ file rotary root canal preparation instruments may reduce bacteria from the infected canals significantly superior to hand file root canal preparation instruments.