ABSTRACTS

OF LECTURES AND POSTERS

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RESULTS: Statistical comparisons of the mean SBS and standard deviations, showed non-significant differences between the phosphoric acid, SEP, 70 mJ and 90 mJ-20 Hz Er:YAG laser groups. The SBS for all groups were significantly lower than those of the phosphoric acid and SEP groups. ARI scores indicated that the failure site was mainly at the enamel-bracket interface for all laser groups. The failure sites in the phosphoric acid or SEP specimens occurred within the adhesive. For the phosphoric acid and SEP applications, generally less adhesive was left on the enamel surface for all energy levels of erbium laser applications. SEM examination showed irregular surfaces with microcracks in the laser treated groups, while the phosphoric acid and SEP groups showed more regular and homogenous surface characteristics.

77 ASSESSMENT OF UPPER AIRWAY SIZE OF MAXILLARY PROTRUSION AND MANDIBULAR RETRUSION PATIENTS AFTER ORTHOPAEDIC TREATMENT
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AIM: To retrospectively determine whether different Class II treatments affect airway size in patients with maxillary protrusion or mandibular retrusion.

SUBJECTS AND METHOD: Thirty-eight Class II patients treated either with cervical headgear or a functional appliance (bionator) whose upper airway sizes were not statistically different at the start of treatment but whose sagittal skeletal jaw relationships revealed maxillary protrusion or mandibular retrusion. Twenty patients with a Class I skeletal relationship were chosen as the control group. Lateral cephalograms at the start (T1) and end (T2) of orthopaedic treatment were assessed. Intragroup comparisons were performed using a paired samples t-test, and intergroup comparison of the skeletal features and upper airways using one-way ANOVA, with Tukey’s test as a second step, at \( P < 0.05 \).

RESULTS: ANB changed significantly in the treated groups. Middle airway space, SNB, Co-A and Co-Gn were significantly increased after bionator therapy \( (P < 0.05) \). SNB and SN-1 angles were found to be different in the mandibular retrusion group when compared with both the maxillary protrusion and control groups. No statistically significant difference between the maxillary protrusion and mandibular retrusion groups was found regarding upper airway sizes after cervical headgear or bionator treatment \( (P > 0.05) \).

CONCLUSION: Upper airway sizes are similar in Class II patients with different sagittal skeletal jaw relationships after cervical headgear or bionator treatment. Orthopaedic treatment did not result in changes in the upper airway either treatment types.

78 EXPERIENCES OF MOTHERS OF CLEFT LIP AND PALATE BABIES TREATED WITH NASOALVEOLAR MOULDING
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AIM: To identify difficulties resulting from nasoalveolar moulding (NAM) appliances and the mothers’ awareness related to treatment effects.

MATERIALS AND METHOD: A questionnaire completed by mothers (mean age: 27.6 ± 5.15 years) of 40 babies with a cleft lip-palate (CLP; 26 unilateral, 14 bilateral) after NAM treatment. The questions were prepared with the aid of the Department of Psychiatry.

RESULTS: The mothers of 25 babies with CLP (14 unilateral, 11 bilateral) had difficulties with the appliances during correction of the nose (63%) whereas mothers of four babies had difficulties during correction of the palate (10%). The mothers of 11 babies with CLP reported no difficulties at either stage (28%). Thirty-two mothers reported that their babies were uncomfortable on the first day of the application but they quickly adapted to the appliances. Irritation of the cheeks due to the tapes is reported as another problem. Thirty-eight mothers were aware of the correction in the lip/palate/nose (95%).

CONCLUSIONS: The difficulties resulting from the appliances did not constitute an obstacle for the treatment of babies with CLP. The majority of mothers could observe the positive effects of NAM treatment for their babies.

79 PRECISION IN CEPHALOMETRIC MEASUREMENTS: COMPARISON OF CONE BEAM COMPUTED TOMOGRAPHY AND DIRECT DIGITAL LATERAL CEPHALOGRAMS
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AIM: To determine whether cone beam computed tomography lateral cephalograms (CBCT-LC) are of equal precision in
diagnosis and treatment planning as direct digital lateral cephalograms (DD-LC).

SUBJECTS AND METHOD: The records of 10 patients were randomly selected. Using InVivo5 Dental software
(Anatomage, San Jose, California, USA), CBCT data of each patient was imported and the head position was reoriented
digitally, then CBCT-reconstructed lateral cephalograms of the same patients were generated. A total of 20 simultaneously
recorded lateral cephalograms (10 DD-LC, 10 CBCT-LC) were analyzed. Twenty six parameters (25 angular and 1 ratio
were traced on each cephalogram, and measured twice with an interval of 2 weeks by one examiner using the Viewbox®
3.1.1.13 cephalometric software (Halazontes, Athens, Greece). A paired samples t-test was used to compare the mean values
of differences and intraclass correlation coefficients (ICC) were calculated to determine intra-examiner and inter-group
correlations.

RESULTS: Intra-examiner reproducibility for all measurements was not significantly different between the cephalogram
types. Correlation coefficients were found to be high (ICC ranged from 0.862 to 0.999, \( P < 0.001 \)). The differences in
measurements obtained from CBCT-LC and their DD-LC counterparts were statistically significant for seven angular
variables. The differences were less than 2 degrees, which is generally within one standard deviation of normal values in
conventional cephalometric analysis. The measurements related to the area around the point A were the least precise.

CONCLUSIONS: Precision was similar for both image types. The measurement differences between image types were
statistically significant. The findings substantiate the benefits of CBCT cephalometry in terms of the reliability of two-
dimensional cephalometric analysis.

80 PREVALENCE OF OPPORTUNISTIC MICROORGANISMS ASSOCIATED WITH RETAINERS

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College London, England

AIM: To determine the prevalence and proportions of opportunistic pathogens harboured on orthodontic retainers.

MATERIALS AND METHOD: Firstly, Staphylococcus spp. and Candida spp. were isolated by routine bacterial culture
from orthodontic retainers in comparison to their prevalence in the other areas of the mouth and in comparison with their
prevalence in non-retainer wearers. Swabs were taken from the inner surface of the retainers and other mucosal surfaces of
the mouth. Secondly, retainers manufactured from different materials were sampled and the microbial populations
determined.

RESULTS: Staphylococcus spp. were isolated from 50 per cent of the retainers, including MRSA, and comprised, on
average, 8.4 per cent of the microbiota. Candida spp. comprised 0.13 per cent of the population and were isolated from 66.7
per cent of the retainers. Neither genus was identified from non-retainer wearers. However, there were no statistical
differences observed between the two tested retainers.

CONCLUSIONS: Opportunistic microorganisms could be detected from retainers; however, there were no differences
between the types of appliance used. It is possible that an orthodontic retainer could be a reservoir for opportunistic pathogens
and act as a source of cross infection.

81 EFFECT OF POLISHING THE FITTING SURFACE OF REMOVABLE ORTHODONTIC APPLIANCE
MATERIALS ON BIOFILM FORMATION. AN IN VITRO STUDY

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AIMS: To assess the effects of different retainer materials and their surface properties on biofilm growth and whether surface
modification has an impact on bacterial accumulation.

MATERIALS AND METHOD: Two commonly used retainer materials: heat and cold cured acrylic were investigated with
regard to their surface characteristics including the surface roughness, hydrophobicity and surface free energy. These
physico-chemical properties involved in biofilm formation were studied through laboratory based investigations on modified
surfaces aiming to identify the most suitable surface, from a clinical point of view, that discourage biofilm formation.

RESULTS: The nature of the substrata had no marked effect on the attachment and the colonisation of the bacteria, however,
scanning electron microscopy analysis showed that the microorganisms were still visible in rougher areas of the material
after vortexing the discs to remove them.

CONCLUSIONS: Polishing the surface may not reduce bacterial colonisation but may be of importance in terms of cleaning
the appliance and maintaining good oral hygiene.