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ORAL PRESENTATIONS

The variability of third molar development using root measurement in Malay Kelantanese

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Age estimation for above 16 years old rely on the third molar development. However, the development variability of this tooth in Malay sample was still unknown. The aims of this study were to quantify sex and side variability of 3rd molar development. This cross-sectional study used 330 orthopantomograms of 165 males and 165 females of Malay Kelantanese patients aged between 14 to 25 years. Both sides of lower 3rd molar were utilized in this study. The length between mesial cementoenamel junction (CEJ) to mesial specule, mesial CEJ to distal CEJ and distal CEJ to distal specule was measured using VixWin software (GENDEX USA). All measurements were calibrated using the height of 'L' image on the OPG plate as a reference point. Independent t-test was used to assess the sexual dimorphism meanwhile paired t-test was used to assess the side differences. All statistical analyses were performed using SPSS 12.0 version (SPSS Inc, US). Significant level was set at $p<0.05$. Sexual dimorphism was apparent in several age groups for both sides of the dentition. The root development was more advance in males for younger than 18 years old and older than 20 years while a reverse pattern for 18 to 20 years old groups. Side differences were only found in 19 and 20 years old male group. The sexual dimorphism is significant in the root development while side differences are negligible.

Post implant placement in Dental Specialist Clinic HUSM: a review

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Dental implant has brought significant quality changes to patient's lifestyle. Yet, survival rate among such patients in HUSM is still not studied. Complications arising from implant may vary from person to person. The objectives were to determine the prevalence of survival rate of post implant placement in Dental Specialist Clinic HUSM, with soft tissue evaluation and assessment of marginal bone loss. It is a cross sectional study. 51 implants, restoring both single teeth and partially edentulous situations, in 30 consecutively treated patients (23 women and 7 men, between the ages of 24 and 84), were included. Retrospective data on implant position, implant size was obtained from patient records. Data were analyzed with descriptive statistics. Failure cases were found in 5 implants. The average bone level remained fairly stable up to 3 years, thereby matching the criteria for long-term marginal tissue stability. In general, healthy soft tissue and favorable esthetic outcomes were observed. Within the limitations of this study, the favorable implant survival rate and stable bone level together with good esthetic and soft tissue outcomes suggest implants may play important role in replacing the natural tooth loss.

The influence of red sirih (*Piper crocatum*) and green sirih (*Piper betle lynn*) leaf extracts on the neutrophil count of inflammed oral mucosa during healing

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Sirih leaf extracts are being widely studied. This *in vivo* study involved 21 male Wistar rats (*Rattus norvegicus*). The oral mucosa of the rats were topically applied with Lidocaine 5% and drops of H_2O_2 10% were applied three times a day for 3 days to create artificial inflammation sites. These rats were then divided into four groups: Group 1 (3 rats), group 2 (6 rats) as controls, group 3 (6 rats) were treated with topical application of red sirih extract and group 4 (6 rats) were treated with topical application of green sirih extract. Group 1 was sacrificed at day 1. Three rats in group 2, 3 and 4 was sacrificed at day 1 and another three of the respective groups were sacrificed at day 2 of intervention. Histopathological slides of the rat mucosal tissue was prepared and neutrophil counts were observed. There were signs of inflammation in group 1, 3 and 4 while no inflammatory signs were observed in the control group. Neutrophil counts were noted and compared at day 1 and 2. Kruskall Wallis analyses showed significant reduction in neutrophils of group 3 and 4 compared with the

Note: Underlined names indicate presenting authors.

control group. Group 4 treated with red sirih extract showed the most significant reduction in neutrophils. Thus the red sirih leaf extract (*Piper crocatum*) has potential in the healing of inflamed mucosal tissues of Wistar rats (*Rattus norvegicus*).

A comparison of effectiveness between written, verbal and videotape oral hygiene instructions

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There are three main methods of delivering oral hygiene instructions clinically: verbal, printed materials and videotape. The aim of this study was to compare the effectiveness between written, verbal and videotape oral hygiene instructions. Subjects (n = 65) who were 18 years old and above with education level at least primary education were randomized into three groups: to receive printed sheets, view a video compact disc, and receive verbal instructions from hygienist respectively. All subjects were screened for plaque and gingival index scores pre and post instructions with two weeks duration interval. Median and interquartel range were calculated, both for pre and post intervention by using Wilcoxon Signed Rank test while Kruskal-Wallis test was used in comparing the three groups. Results showed an improvement in plaque and gingival index scores in all three groups. However, only gingival scores were statistically significant at $p<0.05$.The finding suggests that the three methods could give some encouraging improvement, however videotape mode is most effective in enhancing oral hygiene instructions.

Three dimensional analysis of facial morphology in normal Malay children

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The analysis of facial landmarks has been studied at length in two dimensions through the role of cephalometrics in orthodontics. However, as the face is a three-dimensional (3D) structure, the need to record its position in three dimensions has been highlighted .The aim of this study is to compare facial morphology between male and female Malay children aged 8-10 years old. Forty five subjects (23 boys, 22 girls) age ranged 8-10 years old with Class I malocclusion and Class 1 soft tissue profile were selected from the patient population of dental clinic in Hospital Universiti Sains Malaysia. The frontal facial images were obtained by using 3dMD Tricorder System. Independant T test was used to assess the differences. Finding showed gender dimorphism in most parameter of eye, nose, mouth and facial height. Almost all values of the eye level were statistically greater in boys than girls except intercanthal width. The length of nasal tip and upper lip length were greater in girls than boys. The upper facial height and total facial height were significantly greater in boys comparing to girls.

Cytotoxic effects of different composite resins on stem cells from human exfoliated deciduous teeth (SHED)

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Many types of monomer and co-monomer in composite resin are cytotoxic to the dental cells and tissue. Luxacore Dual cure and 3M Z100 light cure composite resins are among the new composite resin in the market that their relative cytotoxicity is still unknown. The purpose of this study was to evaluate and compare the degree of cytotoxicity of two resin-based materials namely, Luxacore and 3M Z100. Standardized direct cytotoxicity test (ISO 10993-5) were used to test and compare the cytotoxic effects of Amalgam silverfil (positive control), 3M Z100 light cure, Luxacore dual cure and the negative control. The direct contact cytotoxicity was tested on the stem cells from human exfoliated deciduous teeth (SHED). Cell viability was measured by Elisa test at 540 nm wavelength after MTT assay. Data were analyzed with Kruskal Wallis and Mann Whitney U-Test (SPSS version 12.0.1.) p-value <0.05 was considered significant. There was a significant different between the samples (Chi-square=36.6; df=3; $p<0.001$). The relative cytotoxicity among the samples in descending order; Ag Silverfill, Z100, Luxacore and negative control. Luxacore's cytotoxicity was similar with negative control ($p<0.300$) while the cytotoxicity of Z100 was more than the cytotoxicity of negative control ($p<0.023$). The cytotoxocity for both materials, Luxacore and Z100, is similar. However, Luxacore is a better choice for dental practice than Z100.

A study of the variability of third molar development among Malay population in Kota Bharu, Kelantan

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Third molar (M3) or also known as wisdom tooth is highly variable in all aspects; size, shape and contours of both crown and root portions. The variability of the development of the third molar should be studied to have some insight of their potential use for age estimation of Malaysians. The aim of this study was to characterize the

variability of lower third molar development in Malay population with respect to different sexes, sides and at two important legal ages (16 and 18 years old). Orthopanthomograms of 309 females and 309 males aged between 13.0 to 25.5 years old were evaluated using eight grade scheme proposed by Demirjian *et al.* (1973). Sex differences in age of attainment were tested using an independent t-test, while side association was assessed by Spearman 'rho' correlation coefficient. There was no significant sexual dimorphism in the lower third molar development among Malay population. There was a strong relationship of tooth development on the right and left side of third molar starting from the age of 14-19 years old but was moderate to weak for the subjects above 20 years old. At stage H (closed apex), 70% of subjects were 18 years old and older. At stage E and below, 93.5% of female subjects were younger than 16 years old. In conclusion, there were no side differences and no significant sexual dimorphism in the lower third molar development. The results suggest high variability in the third molar development in 16 and 18 years old group (except for 16 years old female groups).

Oral cancer knowledge among dental students in Malaysia

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Oral cancer is the sixth most common cancer reported worldwide and death rate associated with oral cancer is predominantly high due to the cancer being routinely discovered late in its development. The purpose of this cross sectional study was to determine oral cancer knowledge, including the risk factors, signs and symptoms, and diagnostic procedures, among dental students in Malaysia. Self administered questionnaire were distributed to all 184 final year dental students in Universiti Sains Malaysia, Universiti Kebangsaan Malaysia and Universiti Malaya. A total of 159 questionnaires were completed and returned (86.4%). The majority of respondents (96.9%) correctly identified squamous cell carcinoma as the most common form of oral cancer. Most respondents also knew that tobacco use (100%), alcohol use (97.5%), and betel quid chewing (98.7%) as factors most likely associated with oral cancer. However, most students (70.4%) could not identify low consumptions of fruits and vegetables as a risk factor. Responses on non-risk factors were also less impressive. The majority of students failed to exclude non-risk factors such as obesity (82.4%) and family history (87.4%). Only 60.4% were able to correctly identify all procedures involved in tongue examination. More than half of the respondents (68.6%) also did not know that patients are usually asymptomatic at the early stage of oral cancer. In conclusion, final year dental students in Malaysia may not have received adequate knowledge regarding the signs and symptoms, risk factors and examination procedures of oral cancer detection.

The effect of desensitizing treatments on the bond strength of resin modified glass ionomer cement to dentin

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Desensitizing agents have been widely used to overcome dentinal hypersensitivity nowadays. However it is still questionable whether the desensitizing treatment will affect the bond strength of restorative material to dentin should the former treatment fail. Therefore this study was designed to evaluate the effect of Duraphat® (Colgate Oral Pharmaceuticals, USA) and Bifluorid 12® (VOCO, Germany) desensitizing agents on the bond strength of resin-modified glass ionomer cement (RMGIC) to dentin. Twenty-one extracted human premolars were sectioned off at the coronal portion with hard tissue cutter (Exact®, Japan) to expose flat dentin surfaces. The surfaces were polished with 500-grit Silicon Carbide abrasive papers. The sample teeth were then randomly assigned into 3 groups: Group 1 treated with Duraphat®, Group 2 treated with Bifluorid 12® and Group 3 without desensitizing treatment. The desensitizers were applied according to the manufacturer's instruction. The teeth were soaked in artificial saliva for 7 days. Cavity conditioner was applied to each dentin surface before RMGIC, Fuji II LC, was bonded to the dentin. The RMGIC was debonded by shear stress using universal testing machine, Instron® 8874 (Instron Corporation, Canton). Kruskal-Wallis test was used in statistical analysis. Results showed that application of desensitizing agents on dentin had significantly reduced the shear bond strength of RMGIC: Duraphat® (0.58 ± 0.16 MPa) and Bifluorid 12 (0.98 ± 0.65 MPa) with $p<0.05$. The findings concluded that the shear bond strength of Fuji II LC will reduce if the dentin surface is pretreated with Duraphat® and Bifluorid 12®.

A study of cytotoxicity evaluation of new 7th generation dentin bonding agent on human pulp cells

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Dentin bonding agents are resin based materials used in clinical dentistry in order to prevent leakage and promote adherent of filling material to the enamel and dentin. However, the polymerization of dentin bonding agents will release residual monomer that may interact with pulp tissue. The aim of this study was to evaluate the cytotoxicity of the new 7th generation dentin bonding agent (G Bond) on human exfoliated pulp cells (SHEDs). This is a descriptive experimental study using *in vitro* cytotoxicity extract test method. The proliferated human pulp cells were incubated at 37°C for 48 hours. Under aseptic conditions, extracted test specimens were plated in 96 well of tissue trays. SHEDs were plated on each well with different concentration of dentin bonding agents. Then, it was incubated at 37°C for 72 hours exposure. MTT assay was performed. Statistical analysis of the data showed that higher concentration of dentin bonding agents induced higher toxic effect to SHEDs. In conclusion, 7th generation dentin bonding agent showed cytotoxicity to human pulp cells when material concentration was more than 0.035 g/ml (IC_{50}=0.035 g/ml). It was concluded that pulpal reaction to dentin bonding agent may differ by the number of applicant procedure.

The effect of salivary contamination on bond strength of self-etch adhesive on primary teeth

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The purpose of the study was to evaluate the effect of salivary contamination on shear bond strength of composite resin when Adper® Easy One self-etch adhesive is used on primary teeth. Thirty extracted primary molar were randomly divided into three groups. The coronal portion of each tooth was sectioned off to expose the clean dentin surface. Cylinder shape composite resin was bonded to the dentin surface using the self-etch adhesive under three different conditions: (1) control; (2) saliva contamination before application of adhesive; and (3) saliva contamination after application of adhesive, but before curing. The resin composites were then debonded by shear stress. One-way ANOVA was used for statistical analysis in comparing three means. Results showed that there was no significant difference in the shear bond strength of composite resin among variables tested (p=0.061). Therefore, saliva contamination did not affect the shear bond strength of composite resin in primary teeth when self-etch adhesive was used as bonding agent.

Barriers to utilization of oral health care services among antenatal mothers in Hospital Universiti Sains Malaysia

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Emerging evidence has shown that maternal oral health and pregnancy outcomes may be associated. The Ministry of Health Malaysia has introduced specific oral health program for antenatal mothers since more than three decades ago. Yet the utilization of available oral health care services among antenatal mothers has been reported to be poor. The objective of this study was to identify barriers to utilization of oral health care services among antenatal mothers attending the Obstetric and Gynecology Specialist Clinic in Hospital Universiti Sains Malaysia. Self-administered questionnaires were distributed to 124 antenatal mothers in the third trimester of pregnancy. The majority of the mothers (62%) were aware that maternal oral health and health of the fetus may be associated. They were also able to identify dental caries (63.7%) and periodontal disease (50.8%) as the common oral health problems during pregnancy. Many of them reported cavities in their teeth (43.5%) and had toothache (15.3%). However, only 29% of participants had visited dentists during their current pregnancy. Major reasons cited for not seeking oral health care services were 'long waiting time', 'no immediate treatment given' and 'not having any dental problems'. In conclusion, utilization of oral health care services among antenatal mothers was low. Dissatisfaction with the services rendered and perceptions of not having any oral health problems were among the main barriers. New strategies should be undertaken by the oral health care providers to improve the uptake of oral health care services among antenatal mothers.

The influence of various concentrations of red sirih extract (*Piper crocatum*) on the healing of inflamed oral mucosa of *Rattus norvegicus*

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The use of traditional herbs such as sirih has gained much attention. Red sirih extract (*Piper crocatum)* has *s*hown ability to sooth inflammation sites. This study was carried out to investigate the role of various concentrations of red sirih extract (*Piper crocatum)* on the healing of inflamed oral mucosa.This *in vivo* study involved sixteen 3-month-old male Wistar rats (*Rattus norvegicus*). The oral mucosa of the rats were topically applied with Lidocaine 5% and drops of H_2O_2 10% were applied three times a day for 3 days to create artificial inflammation sites, then were given red sirih aplication on 4th until 6th day. These rats were then divided into

four groups: Group 1 (control) was not given any treatment, group 2 was treated with application of 20%, group 3 with application of 30% and group 4 with application of 40% red sirih extract. The rats were then sacrificed after 6th day and histopathological slides of the rat mucosal tissue was prepared and observed under 100 magnification of the light microscope. The healing process was scored using Eda S and Fukuyama modification method indicating blood vessel vasodilatation and lymphocyte number. Kruskall Wallis analyses showed that there were significant differences in oral mucosal reaction in the healing of the inflammed tissues with different concentrations of the extract. The application of 40% red sirih leaf extract (*Piper crocatum*) was more effective in the healing of inflamed mucosal tissues of Wistar rats (*Rattus norvegicus*).

Oral health status of psychiatric patients in Hospital Universiti Sains Malaysia (HUSM)

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Poor oral health frequently reported among the psychiatric patients worldwide. The aim of this study was to determine the oral health status of psychiatric patients attending psychiatric clinic of HUSM. Seventy-five psychiatric patients aged 17 years old and above were selected randomly from psychiatric clinic in HUSM. Data on sociodemographic profile were obtained and the oral health status was examined by using DMFT, Community Periodontal Index (CPI) and Oral Hygiene Index-Simplified (OHI-S). The data were analyzed using SPSS version 12.0. Of the 75 patients, 52% were males and 48% were females. Their mean age was 34.7 years old. 98.7% had at least 1 year of mental illness with the mean of 8.63 years. Majority were diagnosed with schizophrenia (66.7%). The prevalence of dental caries and periodontal disease were 89% (95% CI: 82%, 96%) and 85% (95% CI: 77%, 94%). The mean DMFT was 10.8 (SD 6.67) and the mean of decay, missing and filling teeth were 4.31 (SD 3.52), 4.60 (SD 5.81), and 0.84 (SD 1.39) respectively. The mean of OHI-S was 1.12 (SD 0.58). Regarding the periodontal problems, 12% were having healthy periodontium, 18.7% bleeding on probing, 33.3% had calculus, 20.0% deep pocket with depth of 4 -5mm and 14.7% were having deep pocket with the depth of ≥ 6 mm. Age and duration of illness showed to have significant linear relationship with DMFT, and missing teeth. However there was no significant linear relationship between CPI score with age and duration of illness (p>0.05). In conclusion, oral health status of psychiatric patients seems to be relatively worse than that of general population. A special intervention programs needs to be developed to improve the oral health status of this group of patients.

Microleakage study of amalgam bonding systems

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Microleakage between amalgam restoration and tooth structures has been a major problem. The objective of this study was to evaluate the degree of microleakage in amalgam restorations with applications of amalgam bonding agent. This was an *in vitro* study using 46 extracted human premolar teeth, randomly divided into 4 tested groups and 2 controlled groups. A combination of 2 different types of amalgam alloys which were Silverfil (Dunia Perwira, Malaysia) and SDI-Permite (SDI, Australia) and 2 bonding agents which were Panavia F (Kuraray, Japan) and Superbond C&B (Sun Medical, Japan) were used to restore Class V preparation on buccal and lingual tooth surfaces. The specimens were immersed in methylene blue dye and then sectioned using diamond wheel. The mean depth of dye penetration was evaluated using stereomicroscope (Leica, Germany) and analyzed with Kruskal-Wallis and Mann-Whitney tests (α=0.05). All groups revealed the presence of dye penetration which were more pronounced on gingival than occlusal wall. On the gingival wall, Panavia F/SDI-Permite showed the least mean dye penetration (p=0.004), however, it was not significantly different when compared to the controlled group. On the occlusal wall, Superbond C&B/SDI-Permite showed the least mean dye penetration (p<0.001). Although none of the bonding agent can totally eliminates microleakage, there were less microleakage in bonded SDI-Permite amalgam restorations both on the gingival and occlusal walls when compared to bonded Silverfil amalgam restorations.

Determination of minimal inhibitory concentration (MIC) of natural plant products on oral bacteria: an *in vitro* study

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Many studies have been done to determine antibacterial activity of various natural resources including plant products. This study aimed to determine the minimal inhibitory concentration of garlic, clove and curry leaf on *Staphylococcus aureus, Streptococcus mutans, Streptococcus sobrinus, Pseudomonas aeruginosa*, and

Lactobacillus salivarius and also to determine whether they are bactericidal or bacteriostatic. Garlic, clove and curry leaf solutions were prepared in four different concentrations: 2g/ml, 1g/ml, 0.5g/ml and 0.25g/ml. The preparations were poured into four wells of agar plates cultured with the tested bacteria. The inhibition area was observed after 24 hours incubation and the most diluted concentration with inhibition zone was selected. Serial dilution was done on the selected concentration and then poured into the agar plates which were cultured with bacteria. The plates were then incubated for another 24 hours. After the second incubation, the most diluted concentration with inhibition zone was marked as minimal inhibitory concentration. Results showed that garlic were bactericidal to all tested bacteria by having persistent zone of inhibition after 48-hour incubation. The MICs for garlic were; *Staphylococcus aureus* 0.30g/ml*, Streptococcus mutans* 1.20g/ml*, Streptococcus sobrinus* 0.50g/ml*, Pseudomonas aeruginosa* 1.80g/ml, and *Lactobacillus salivarius* 1.80g/ml. Only two tested bacteria, *Staphylococcus aureus* and *Pseudomonas aeruginosa*, showed sensitivity to clove after 48-hour incubation with MICs of 0.45g/ml and 0.90g/ml respectively. Curry leaf solution showed no inhibition effect on any bacteria; instead growths of all bacteria were adversely enhanced. In conclusion, garlic and clove demonstrated bactericidal effects against oral bacteria tested.

Prediction of outcome of twin block functional appliance therapy in Class II Division 1 malocclusion patients

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Class II malocclusion is one of the most common orthodontic problems and its most consistent diagnostic finding is mandibular skeletal retrusion. A wide range of functional appliances aimed to stimulate mandibular growth by forward posturing of the mandible is available for the correction of Class II disharmony. Twin Block appliance, a type of functional appliance, consists of separated maxillary and mandibular acrylic plates with bite blocks that posture the mandible forward on closure. The objective of this study was to identify pre-treatment cephalometric variables for the prediction of overjet reduction induced by Twin Block functional appliance in Class II malocclusion patients attending Hospital Universiti Sains Malaysia (HUSM) in Kota Bharu, Kelantan. The retrospective record review of lateral cephalogram of all Class II Division 1 malocclusion patients treated with Twin Block appliance was carried out at HUSM. The information obtained include name, age, gender, and cephalometric measurements. Multiple regression analysis was used to relate the overjet reduction achieved by Twin Block functional appliance to the measured pre-treatment cephalometric parameters. The data of 31 individuals, comprising of 15 males and 16 females was included in the final analysis. The pre-treatment overjet, SNB angle and lower incisor angle were the most strongly predictive variables associated with the overjet reduction. A predictive equation for the expected overjet reduction was constructed : Reduction in overjet $= 43.68 - 0.23X_1 - 0.22X_2 - 0.54X_3$, where X_1 = SNB(°), X_2 = lower incisor angle (°), X_3 = overjet (mm), and R^2 = 53.9 %. Based on the predictive equation, the smaller the pre-treatment overjet, lower incisor angle and SNB angle, the more successful the overjet reduction becomes.

A pilot study of pain and swelling in primary and secondary wound healing of post surgical removal of impacted mandibular third molar teeth

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Surgical removal of third molar teeth is one of the most common surgical procedures performed by dental surgeon. Patients who had undergone surgical removal of the third molar tooth commonly experienced pain and swelling post surgically irrespective of whether healing is primary or secondary. This study was performed to compare pain and swelling of the primary and secondary wound healing in post surgical removal of impacted mandibular third molar teeth in patients attending HUSM dental clinic surgery. Ten patients with impacted mandibular third molar teeth were selected and divided into 2 groups consisted of 5 patients for each group. Panoramic radiograph were taken to assess the degree of eruption and angulations of impacted mandibular third molar teeth. After surgical removal of the teeth, the sockets of patients in Group 1 were completely closed by suturing for primary healing. In Group 2, 5-6 mm wedge of mucosa above the socket was removed and the flap was sutured with exposed socket for secondary healing. Pain and swelling were evaluated using VAS scale for 7 days post operatively. Statistically, there was no significant difference (p<0.05) of pain and swelling for both groups for 7 days. Pain threshold in Group 2 was slightly lower on the first day as compared to Group 1. Swelling was lesser in Group 2 on 2^{nd}, 3^{rd}, 6^{th} and 7^{th} day as compared to Group 1. In conclusion, pain and swelling were less in secondary wound healing as compared to primary wound healing.

Stress distribution analysis of seat and non-seat root canal design preparation of cast post in maxillary central incisor using finite element method

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A post is used to retain a core that supports the definitive prosthesis. One of important factors in the prognosis of post endodontic restoration systems is the root canal preparation design, which affects the distribution of stresses associated with fracture resistant. The purpose of this study was to analyze the effect of root canal preparation design at cervical area to the stress distribution on static loading using Finite Element Method. This was a numeric simulation study using two 2D digital models: seat and non-seat design of maxillary central incisors using Patran/Nastran software. The procedures of pre-processing, solution and post-processing were used to evaluate the distribution of internal stress caused by static loading of 110 N, applied at 135º angle with the longitudinal axis of tooth on the palatal surface. Both models were divided into 15,400 triangular elements. This study showed that maximum stress at cervical part of root for non-seat design was lower than seat design (maximum stress ratio of seat to non-seat design is 3.69). This study proves that non-seat design distributes stress better than the seat design. Therefore, non-seat design is more resistant to fracture than seat design.

Assessment of the perception of fear and anxiety among children and their parents attending HUSM Dental Clinic

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Anxiety and fear of dental treatment in children has been recognized as a problem in patient management. An understanding of the various etiological factors in dental fear and anxiety would help in the management of the child-patient. This study aimed to determine perception level and common causes of dental fear and anxiety and compare with age group, gender and socioeconomic status (SES) among children and their parents attending the HUSM Dental Clinic. This cross sectional study involved 215 randomly selected children aged 2+ to 12+ years old (<13 years old) and their accompanying parent. The Malay translated and validated version of the Children's Fear Survey Schedule-Dental Subscale (CFSS-DS) questionnaire was used. The questionnaire was filled by the accompanying parent. Ethical approval was obtained prior to the conduct of the study. Afraid of injection, choking and dentist drilling were common causes of dental fear and anxiety among children. Most parents did not fear the dentist. There were no statistically significant (p>0.05) associations between perception level of dental fear and anxiety with age group, gender and socioeconomic status (SES). The CFSS-DS highlighted the causes of anxiety and fear in children. Healthcare providers may need to take these into consideration to ensure effective management of the child when giving dental treatment.

Patient satisfaction of full dentures issued by undergraduate dental students

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Denture quality is important in successful complete denture treatment. However, there are situations where clinical findings do not correlate with patient satisfaction. The aim of this study was to evaluate denture quality and patient satisfaction of full dentures issued by undergraduate dental students. Sixty-four patients who had been completely treated for complete dentures by undergraduates in 2007 and 2008 were identified through clinical record, called for review and examined for denture extension, retention and stability. Patients were also interviewed regarding denture performance. The percentages of patients who were satisfied and not satisfied with the performance of their dentures were 54.7% and 45.3% respectively. Thirty-one patients (48.4%) complained about loose dentures while 48.4% felt uncomfortable during eating. Forty-nine patients (76.6%) were satisfied with their appearance. In 44 patients (68.8%), the dentures were properly extended into the lingual sulcus. In 37 patients (57.8%), the dentures had good retention and stability but 11 patients (30%) were not satisfied with their dentures. Among the patients who complained about loose denture, 12 of them (38.7%) were satisfied with the dentures. The percentages of patients who were satisfied with the denture did not correlate with the quality of dentures. There were cases where the qualities of the dentures were good, but the patients were not satisfied with their dentures and vice versa. Patient satisfaction of full dentures was dependent on many factors including the quality of the denture and patient acceptance and ability to adapt.

The function of alpha-lactalbumin of human milk in oral mucosal immunity and decreasing cancer risk in infant

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This study is a literature review of 26 references from latest journals to know whether alpha-lactalbumin can increase oral mucosal immunity and may decrease cancer risk in infant. Human milk provides the primary source of nutrition for newborns and helps to protect the newborn until its own immune system is functioning properly.

Human milk contains alpha-lactalbumin, a major milk protein, which may benefit the immune and neurogical system, and promote gut function maturation and healthy gut microflora. In infants, cancer is an aberrant genetic process that fails to safeguard against the clonal proliferation of cells with unregulated growth potential occurring very early in life and progresses very quickly. Recent studies demonstrated that breast-fed infant could have natural protection from cancer. A folding variant of alpha-lactalbumin, called HAMLET (Human alpha-lactalbumin made lethal to tumor cells), likely induces apoptosis in tumor and immature cells by selectively purging malignant cells by an apoptosis-like mechanism but leaves normal cells unharmed. Alpha-lactalbumin may decrease cancer risk in infant and play a role in oral mucosal immunity.

Facial landmarks differences using facial shape analysis in Malay

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The objective of the study was to identify the identical and differences in facial measurements between Malay ethnic groups (Bugis and Banjar) using geometric morphometric software. A cross sectional study was applied and frontal photographs were collected from 62 Malays (16 males and 15 females for each ethnic). A digital SLR (Single Lens Reflex) Nikon D80 (Nikon Corporation, Tokyo, Japan) was used to capture subjects photos. X and Y coordinates were obtained. Fifteen homologous landmarks, ten links and seven J-links were marked using Data Digitizer. Using Morpho Studio software, Procrustes mean was computed. J-links analysis was done and facial soft tissue configuration for size, shape and direction of change were detected using Finite Element analysis. Comparing Banjar to Bugis males, Banjar showed statistically significant J-links with smaller oral width (7% decrease) and smaller right and left eye width (2% decrease) however they have bigger distance between zygions (7% increase). Anisotropic shape change of Banjar occur at the left zygoma. For direction of change, Banjar ethnic showed horizontal change at upper facial while vertical change occur at middle and lower facial region. For Banjar to Bugis females comparison, significant J-links was detected when Banjar had smaller right eye width (2% decrease), while anisotropic shape change of Banjar was detected at lower forehead and lower facial region. Furthermore, Banjar also showed horizontal change in lower forehead region and left zygoma while vertical change was noted in the lower facial region. It was concluded that the significant difference in specific facial measurements between Bugis and Banjar was detectable using geometric morphometric software.

Arterial stiffness in gingivitis: a comparative cross-sectional study

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Gingivitis is an inflammatory reaction involving the gingival tissues which is caused by bacterial plaque. Inflammatory reaction then may cause endothelial damage and facilitate cholesterol plaque attachment, eventually may lead to the stiffness of arterial walls. The objectives of this study were to compare arterial stiffness measured as pulse wave velocity (PWV) between gingivitis patients or cases and those without gingivitis or controls and determine the correlation between gingival index and plaque score with PWV in patients with gingivitis. This was a comparative cross-sectional study involving 15 cases and 15 controls. The Complior® machine was used to measure PWV. Plaque and gingival scores were determined using periodontal probes and disclosing tablets. There were 9 males and 21 females in the sample. The mean age of males and females was 22.9 (SD1.97) years and 22.8 (SD2.00) years respectively. There was no significant difference in PWV between cases and controls. The median PWV in cases was 6.3 m/s (IQR 0.80) and 6.4 m/s (IQR 0.70). There was no correlation between gingival score and PWV (r=0.13) and between plaque score and PWV among cases. Therefore gingivitis does not seem to be related with arterial stiffness. Possible reasons could be due to the early stages of periodontal disease and this may not be enough to cause endothelial damage or arterial changes.

Knowledge and opinions of infant oral health among First and Fourth Year Medical and Dental Students in Universiti Sains Malaysia

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The management of Early Childhood Caries (ECC) is a major challenge for dentists worldwide. Knowledge of infant oral health care among health care workers is important in educating parents and caretakers about prevention of ECC. The purpose of this study was to assess the knowledge and opinions regarding infant oral health among medical and dental students in Universiti Sains Malaysia. This cross sectional study involved 75 first year medical (M1) and dental (D1) students each and 58 fourth year medical (M4) and dental (D4) students each. The questionnaire included demographics, knowledge of tooth eruption, importance and opinions of first dental visit for the children, and recommendation on bottle weaning by Ministry of Health, Malaysia. Knowledge level of D4 students was higher

compared to the rest of the groups. Significant difference was found between M4 and D4 students for all items while only two items were significantly different between M1 and D1 students i.e. pertaining to the age of first tooth eruption and MOH recommendation on bottle weaning. The findings revealed that all the students have inadequate knowledge regarding infant oral health indicating that both dental and medical curriculum should emphasize on infant oral health. It is suggested that medical students may join lectures pertaining to important of public health issues like infant oral health that is held in the dental school.

Caries prevalence, experience and salivary characteristics of the children with Down's syndrome

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There have been many studies on dental caries in down syndromes (DS), but limited study done on the salivary characteristics of these patients. The aims of this study were to determine the caries prevalence, caries experience and salivary characteristics (flow rate and pH) in both primary and permanent dentition of DS children as well as to correlate the caries experience with the salivary characteristics. A cross sectional study was conducted on 53 DS children. Clinical oral examination was done and salivary characteristic was checked by using *Saliva-Check BUFFER*® by GC Co. Japan. Data were analyzed using SPSS version 12.0. There was an equal number of male and female. Their mean age was 11.7 (SD 5.51) years old and majority (98.1%) was Malays. The caries prevalence for primary dentition was 74% (95%CI: 61-86%) while for permanent dentition was 57% (95%CI: 43-70%). The mean dft was 4.2 (SD 5.66) where d= 4.2 (SD 5.67) and f =0.02 (SD 0.14). For the permanent dentition the mean DMFX was 4.7 (SD 4.97) where D= 3.4(SD 5.09), F= 0.42 (SD 0.92) and M=0.3 (SD 0.92). The mean resting flow rate was 11.5 (SD 6.09) while mean pH was 6.2 (SD 0.45). Pearson's correlation showed that there were no significant linear correlation between dft and DMFT with resting flow rate and pH of the saliva (p>0.05). In conclusion, the caries prevalence for primary dentition was lower but the caries experience was almost equal compared to normal children. However, the caries prevalence and experience for permanent dentition was higher among DS children. Mean resting flow rate was higher than normal resting flow rate range. The mean pH of saliva was slightly lower compared to normal children. Caries occurrence was not correlated with the resting flow rate and pH.

Effects of motivation and periodontal health promotion with listening, reading and touching methods for periodontal condition of patients with visual handicapped at Karya Murni Orphanage in Medan

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Patients with visual handicapped had the weakness on visual and lack of knowledge regarding oral health that impaired their oral hygiene. This condition is a challenge for dental practitioners to do dental care in this community. The aim of the study was to assess the effect of the proposed alternative methods consisting listening, reading and touching to overcome periodontal problems for patient with visual handicapped. A total of samples in this study consisted of 30 patients in Karya Murni Orphanage, Medan with visual handicapped divided into two groups. The first group were given motivation and periodontal health promotion (listening, reading and touching) where as the second group did not received those methods. All samples received initial treatment (scaling and root planing) at baseline. Clinical parameters namely Oral Hygiene Index (OHI), Gingival Index (GI), Bleeding on Probing (BOP), and Probing Depth (PD) were examined at baseline and repeated in the 1st month. There were significant differences of OHI, GI, BOP at base line and 1st month between the two groups (p<0.005), but no significant differences in term of PD. The proposed methods can be alternative methods for dental practitioners in motivating and promoting periodontal health for patients with visual handicapped.

A study of the reliability of xenograft in sinus augmentation procedure done in HUSM Dental Specialist Clinic

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Xenograft is a grafting material used in sinus augmentation in Hospital Universiti Sains Malaysia Dental Specialist Clinic. The utilization of xenograft has profound effects on the stability of dental implants placed via sinus augmentation. The aim of this study was to evaluate the reliability of xenograft in sinus augmentation. Twelve patients with a combined total of 15 dental implants placed through sinus augmentation utilizing xenograft as its grafting material were identified manually through record review. They were called for appointment for review of their respective dental implants. The dental implants were examined clinically and radiologically according to a set of criteria's which determines their success. The dental implants were examined clinically for peri-implant hygiene status and for post-operative complications in peri-implant tissue like pain, swelling and bleeding. They were also

examined for implant mobility. Radiologically, a periapical radiograph was taken for each respective dental implant and examined for vertical bone loss. A statistical analysis of the clinical and radiographic data obtained was conducted. The clinical result shows that the peri-implant tissue's show good hygiene status (100%) and absence of post-operative complications (100%). All the implants show absence of post-operative mobility (100%). Radiographic results show absence of vertical bone loss (100%) and peri-implant radiolucency. The results show a 100% success rate of dental implants done under sinus augmentation utilizing xenograft. This confirms a positive reliability of xenografts used in sinus augmentation.

The effectiveness of *Salvadora persica* and commercial whitening toothpaste at preventing tea and chlorhexidine stain: an *in vitro* study

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Salvadora persica (*S. persica*) is a plant which contains wide range of healthy components that has been used as chewing stick for ages in maintaining good oral hygiene and currently had been approved to remove stain. However, its preventive effect still under research. Objective of the study was to reflect the effectiveness of *S. persica* and commercial whitening toothpastes in preventing tea and chlorhexidine stain. Three group studies were conducted; group A was drinking water (control group), group B was commercial whitening toothpaste and group C was whitening toothpaste with *S. persica* extract. Clear acrylic blocks were used; 20 for each group. A baseline measurement was taken before starting the procedure. All specimens were immersed in the artificial saliva (2 minutes), rinsed in distilled water, and exposed in 0.2% chlorhexidine (2 minutes). Then, blocks were carefully removed, washed and placed in standard tea solution (2 minutes). These cycles were performed 8 times a day. Intervention with whitening toothpaste was done for 2 minutes; twice a day. Eventually, all blocks were removed, washed and dried. Stain was assessed by spectrophotometer and visual assessment using Lobene stain index (1968). The blocks remained in the artificial saliva when not in used. This procedure was performed for 5 days. Records show significant results (Kruskal-Wallis test, $p<0.001$); group C (10% of heavy stain), group B (95%), group A (100%). In conclusion, group C (whitening toothpaste with *Salvadora persica* extract) was more effective than whitening toothpaste studied in preventing stain formation.

Post operative assessment of distal periodontal status of lower second molar following minor oral surgery of mesioangular impacted lower third molar in HUSM

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Periodontal defect is one of the complications that might occur as an effect of minor oral surgery of impacted third molar. Some authors have shown improvement of periodontal health distal to the adjacent second molar; whilst others have demonstrated loss of attachment and reduction of alveolar bone height. The aim of this study was to determine the clinical attachment level of distal second molar following minor oral surgery of mesioangular impacted lower third molar. This was a cross sectional study that involved 33 subjects, who had underwent minor oral surgery of mesioangular impacted lower third molar within 6 to 24 months post surgery. The subjects were invited for clinical examination that include general assessment of periodontal status (for inclusion and exclusion criteria) and detail periodontal examination on distal sites of subject tooth (distal second molar adjacent to third molar that had been surgically removed). Standard probing technique was applied during the measurement by using William periodontal probe. The measurement of selected tooth was performed at three sites (distobuccal, mid distal, and distolingual). Their score then averaged to form one mean aspect value (in millimeter). From 33 subjects, 11 subjects were males (33.3%) and 22 subjects (66.7%) were females. The mean age was 21.97 years. Mean gingival recession was 0.0403mm (0.2315mm), while mean for periodontal pocket depth was 1.4039mm (1.389mm). The result suggests that periodontal status of patients following minor oral surgery of mesioangular impacted lower third molar was not significant.

Descriptive study on obstructive sleep apnea of patients attending Sleep Science Laboratory, HUSM

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Hospital Universiti Sains Malaysia (HUSM) Sleep Science Laboratory was established in 2001. Patients were referred to the laboratory for diagnosis, and confirmation of sleep apnea by studying the physiological changes associated with it. To date, no studies had been done to look into the characteristic and severity prevalence of patient attending the Sleep Science Laboratory. This was a descriptive study on the characteristic of patients, severity, prevalence and physiological changes that occurs during Obstructive Sleep Apnea (OSA) in HUSM from year 2002 to 2006. It was a retrospective record reviewed study of 201

patients registered with the Sleep Sciences Laboratory, HUSM from year 2002 to 2006 who were diagnosed to have OSA. Patient's socio-demographics data, history, results of sleep studies were recorded and analyzed using SPSS 12.0. Male shows higher prevalence of having OSA with 72.1% (p=0.01). The Malay has higher percentage with 83.6% (p=0.01). From 201 folders of patient diagnosed with OSA, 137 (67.2%) patients have mild OSA while 43 (21.4%) and 23 (11.4%) have moderate and severe OSA respectively. There was a relationship between OSA and the physiological changes such as oxygen saturation of OSA patient that being recorded. Patient that was diagnosed with OSA in Sleep Science Laboratory, HUSM varies in severity from mild to severe and these related with their sex, and their previous history but not their race. There are physiological changes in OSA.

Management of patient with trigeminal neuralgia referred to Oral and Maxillofacial Unit, HUSM

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Trigeminal neuralgia (TGN) is a characteristic pain in the distribution of one or more branches of the fifth cranial nerve. The diagnosis is made on the history alone, based on characteristic features of the pain. Patient who were diagnosed to have TGN are managed with medication or surgical procedures according to progress of the disease. The objective of the study was to explore the management of patients with TGN which were referred to Oral and Maxillofacial Unit, Hospital Universiti Sains Malaysia. A retrospective record review study of TGN patients referred to Oral and Maxillofacial Unit from February 2000 until July 2008 was performed. Only patients confirmed with TGN and not other types of facial pain were included in this study. Out of 23 patients who fit into the inclusion criteria, 73.9 % were females and 26.1% were males. The patients' age ranged from 21 to 86 years old. The right side of the face (87%) was more commonly affected compared to the left side (13%), and there were no cases of bilateral pain. Most of the patients were managed by medications. As a conclusion, the pharmacological treatment using Carbamazepine is still the first-line treatment for the management of TGN at HUSM. Other types of drugs prescribed were Gabapentin and Phenytoin. The dosage of carbamazepine used ranged from 100mg to 400 mg per day. A small number of patients elected for surgical treatments such as Cryotheraphy, Neurectomy and Intracranial surgery when pharmacological treatment failed.

The impact of oral health status on the quality of life of elderly patients attending the HUSM Outpatient Dental Clinic

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Oral health problems may compromise oral health related quality of life (OHRQoL). This study aimed at determining the oral health status and associated factors of OHRQoL among elderly attending HUSM dental clinic. This cross-sectional study involved 102 randomly selected respondents aged 60 years and above. Face-to-face interview was conducted using the validated Malay Short form Oral Health Impact Profile S-OHIP(M) questionnaire. The DMFT index and Community Periodontal Index of Treatment Need (CPITN) was used to determine caries and periodontal status respectively. More (60%) respondents were male. Most were 60-69 years old. More males were self-employed or pensioners compared to females. Most respondents have chronic diseases, 96% lived with family members, 87% had dental visits and 44% was smoking. Despite majority reporting no dental fear and perceived moderate to good oral health, most felt they need dental treatment. Self perceived oral health satisfaction was higher among females. The prevalence of dentate elderly was 44% and 56% were edentulous. About 71.6% wore dentures while the rest did not. The prevalence of coronal caries and root caries among dentate were 44.4% and 37.8% respectively and 6.7% had deep periodontal pockets. Impacts of OHRQoL were functional limitation, physical pain, physical discomfort and physical disability. Ethnicity and type of occupation was associated with OHRQoL. The high percentage of edentulism and prostheses wearing indicated unsatisfactory oral health status. High prevalence of coronal and root caries reflected untreated disease. The absence of dentures and impacts like 'difficulty in chewing', 'uncomfortable to eat', 'feeling shy' and 'avoid food' require immediate attention.

Microsatellite instability in oral squamous cell carcinoma

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Oral squamous cell carcinoma (OSCC) is malignant, which form in the lips or mouth and constitutes a major health problem. The genetic factors that contribute to the development of OSCCs are poorly understood except from a few scattered reports. Microsatellites are polymorphic loci present in nuclear and organellar deoxyribonucleic acid (DNA) that consist of repeating units of 1-6 base pairs in length. Microsatellite instability (MSI) has been documented as an important event in the carcinogenesis of various cancers and has demonstrated genomic instability reflecting defective mismatch repair system and presence

of putative tumor suppressor genes. The aim of this study was to determine the alterations of the microsatellite marker D3S1079 located on chromosome 3p. DNA was isolated from 7 OSCC and 2 normal samples from the paraffin blocks and Polymerase chain reaction was carried out. The presence of amplicons was assessed using gel electrophoresis. Then, the amplicons were purified, sequenced and analysed. In normal samples, the dinucleotide sequence 'CA' was found to be repeated 9 times in the marker D3S1079. However, in the 7 OSCC samples, 6 had a 'CA' repeat of 9 times as that of the normal except in one sample, where the sequence was repeated 10 times. No mutations were found in all the samples. The increase in number of microsatellite repeats (MSI) in the sample indicates its possible role in the occurrence of OSCC. However, its association with genomic instability is inconclusive due to the smaller sample size and warrants further study in bigger samples.

Child's uptake of dental services and oral health knowledge among mothers of children with Down syndrome

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Down syndrome (DS) is a chromosomal abnormality (Trisomy 21), which the individuals have shown increase risk for impaired oral health. A cross-sectional study was conducted among mothers of DS children. The aims were to determine uptake of dental services and the association between mothers' education level and occupation with child's dental visit. The association between mothers' oral health knowledge and source of dental information was also studied. This study involved four districts which were purposely selected due to time and money constraints. All DS centres were listed and randomly selected. A total of 110 mothers were given self-administered questionnaire to complete. Data collected were analyzed using SPSS version 12.0. 97% responded to the questionnaire. Findings showed that majority (62.6%) of children never visited a dentist, mean age of first dental visit was 7.2 (SD 3.51). Among those who visited, 69.2% did so when in pain, especially children of mothers with low education level (p=0.017), of which 66.7% were non-working. There is significant difference between mothers' education level and age of first dental visit (p=0.010), between knowledge on prevention of caries and sources of dental information (p<0.05) cause of bad mouth breath and role of fluoride with the source of television, radio and magazines, newspaper (p<0.05). In conclusion, dental visits practice among DS children in Kelantan is unsatisfactory. Most mothers have good knowledge in terms of dental caries prevention did not translate into practice of child's dental visit. More emphasis should be given on importance of early child's dental visits among DS children mothers.

The fate of space maintainers fitted in paediatric dental clinic, Universiti Sains Malaysia: a retrospective study

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Premature loss of primary teeth can lead to space loss, crowding and shifting of midline. In these circumstances, space maintainer is indicated in preserving the existing dental arch. The purpose of this study was to report the fate of space maintainers fitted by the students from school of dental sciences, USM. Records were reviewed for 111 patients with space maintainers placed between January 2005 and May 2008. Age of initial insertion, pre-treatment assessment, types, duration of follow-up were recorded and assessed. Fate was recorded as successful, failed or no follow-up care. Three space maintainers were considered successful, 95 were considered failed and 13 were considered no follow-up care. The patients' mean age at initial insertion of a space maintainer was at 8.41 (1.66) years, with 91.9% aged 7 to 13 years and 54.1% were males. Removable partial dentures were the most common type inserted (38.7%). Majority of the failure occurred due to inadequate pre-treatment assessment and follow-up care (38%). The highest frequency of follow-up appointment was 4, with most of the patients were reviewed only once (54.1%). No statistically significant differences were noted between pre-treatment assessment and follow-up care with failure of space maintainers. However, the successful space maintainers have had adequate pre-treatment diagnosis and sufficient amount of follow-up. In conclusion, strict pre-treatment evaluation and continuous follow-up are required for success of space maintainers.

Mechanical and biological properties test of alloy orden as cast post material used in Faculty of Dentistry, Universitas Padjadjaran

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Orden is still used as cast post material in Prosthodontic Installation of Dental Hospital in Universitas Padjadjaran, but the information about its composition, mechanical properties, and biological safety are not available. The purpose of this study was to search the composition, tensile strength, and elastic modulus of Orden, and to evaluate the tissue reactions due to orden implantation in subcutaneous tissue of mice. So that, Orden can be used in clinics with experimental

evidences. Mechanical properties study is a pre-experiment with the one shot case study design. While tissue reactions study is experimental laboratory test. Both mechanical properties and tissue reactions data were analysed using SPSS version 13.0. Composition test showed that Orden is composed of brass with copper as the largest ingredient i(53.76 wt%). Mechanical properties test showed that tensile strength of Orden (300.66 Mpa) was lower than gold alloy type III and elastic modulus of Orden (80.22 Gpa) was higher than dentin. In the tissue reaction test, Orden implantation showed chronic inflammation and increased collagen fibers. Orden can still be used in clinics but the mechanical properties have to be improved, so that the properties of Orden will be closer to gold alloy type III. However, from the biological side, Orden should be used cautiously as it may trigger tissue reaction.

A study of oral health behaviour of adults attending HUSM Dental Clinic

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Good oral health behaviour (OHB) is known to yield a good oral health status. The objectives of this study were to assess the level of dental knowledge and attitudes among adults attending Hospital USM (HUSM) dental clinic; to evaluate the pattern of OHB among these cohorts in relation to location, gender and social characteristics and to evaluate the relative effect of social-behavioural risk factors on caries experience. A cross sectional study was conducted among 113 adults attending HUSM dental clinic. An interview based questionnaire on oral health behaviour was used prior to clinical examination on caries experience. DMFT index was used to review caries status. All data were analyzed using SPSS version 12.0.1. Ethical approval was obtained prior to conducting this study. The level of oral health knowledge was poor. 99.1% of respondents carried out tooth cleaning on a daily basis. Pain and discomfort from teeth were common while dental visit was relatively high. Tooth cleaning was mostly performed by use of toothbrush. Use of toothpaste was common; however, knowledge regarding the fluoridated toothpaste and its effects was low. No significant differences were found in oral health knowledge, attitudes and practices according to location and gender. Gender (female), location (rural area), low educational level, occupation (government employee) were factors of high dental caries experience. In conclusion, oral health authorities should strengthen the systematic implementation of oral health promotion and oral disease prevention programmes. Community orientated dental care services and usage of fluoridated toothpaste should be encouraged for better oral health among public.

Facial soft tissues changes among obese adults in HUSM applying geometric morphometric method

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The aims of this study were to investigate facial soft tissues changes in obese adults after interventions and to compare the facial soft tissues between obese male and obese female adults by applying geometric morphometric method with digital photographs. A longitudinal study was carried out among 52 adults (15 men and 37 women), all with the body mass index larger than 30 kg/m^2 who had undergone interventions over a 3 months period. Two dimensional frontal facial digital photographs were obtained by digital camera. Fourteen homologous landmarks were digitized and J-links were defined on each frontal facial photograph. From the landmarks, several facial dimensions were calculated and data were subjected to finite element analysis (FEM) using Morpho Studio version 3.01 and statistical analysis using SPSS version 12.0.1. All facial dimensions were reduced in obese women after interventions, even if they did not reach statistical significance. The lower facial height of obese men were significantly reduced after interventions (p<0.05). Obese men had significant larger facial dimensions for nasal width, upper facial height, lower facial height and total facial height than obese women (p<0.05). For shape changes, obese men showed anisotropic changes while obese women showed isotropic changes. The directionality changes of both groups were non-homogenous. In conclusion, facial soft tissues morphology differs between obese men and obese women and there are specific facial soft tissues changes in obese adults after interventions. Clinically, there are reductions in all facial dimensions after interventions and the greatest reduction is found on the chin region.

Prevalence of human papilloma virus in buccal swabs of patients with cervical cancer

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Human papilloma virus (HPV) is well known to cause cervical carcinoma and its role in oral tumor especially squamous cell carcinoma is also established now. However, the relationship of HPV infection between cervical region and oral cavity is remains unclear. The objective of

this study was to evaluate the prevalence of HPV detection in oral cavity of patients with cervical cancer. A total of 35 women already diagnosed with cervical cancer currently under active treatment and regular follow up were selected. Buccal swabs were taken and HPV detection was carried out using Hybrid Capture® 2 Assay. Relevant patient information was obtained using a questionnaire. From 35 subjects examined, only two (5.71%) were found to be positive for HPV. Clinically, healthy oral mucosa was observed in HPV positive patients. No association between HPV infections in oral cavity was found with the socio-demographic profile, marital status, reproductive history, tobacco and alcohol usage, contraceptive pills usage and oral health status (p>0.05). Our results show that there is little risk of concurrent HPV infection in oral cavity and cervical region. The occurrence of HPV infection in oral cavity in cervical cancer patient is low (5.71%).

In vitro study of natural plant products against oral bacteria

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With the increasing interest in development of antimicrobials using natural plant products and the rise in bacterial resistance to antibiotics, this study was commenced to explore the possibility of natural plant products to be used in oral health care products against oral bacteria. The objective of this study was to confirm the bacteriostatic or bactericidal effects of crude extracts of natural plant products on oral bacteria. Ethical approval was obtained prior to the conduct of the study. This was an *in vitro* study which employed 5 types of oral bacteria and 3 types of natural plants. The natural plants were garlic (*Allium sativum*), clove (*Eugenia aromatica*) and curry leaves (*Murraya koenigii spreng.*). The oral bacteria were *Streptococcus mutans*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Streptopcoccus sobrinus* and *Lactobacillus salivarius.* From the results, garlic crude extract was found to be both bacteriostatic and bactericidal to all oral bacteria employed in this study. Clove crude extract also showed bacteriostatic and bactericidal effect on *Staphylococcus aureus* and *Pseudomonas aeruginosa* at concentration of 0.5 g/ml and 1.0g/ml respectively. Whereas, curry leaves crude extract showed effect of enhancing the growth of all the oral bacteria instead of bacteriostatic or bactericidal effect. This was evidenced by the denser colonization appearance around the wells filled with curry leaves compared to other regions of the agar medium plate. In conclusion, this study shows that garlic and clove have great potential in oral health care products though further studies and investigations are needed to find out the active substances.

The effect of desensitizing treatments on the bond strength of resin composite to dentine mediated by total etching single bond adhesive system

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Topical methods of treating dentin hypersensitivity by applying desensitizing agent are widely used because of their convenience and immediate effect. However, there is concern regarding application effect of desensitizing agent on shear bond strength of resin composite to dentin. The purpose of this study was to compare the effect of dentin pre-treatment with 2 desensitizing agents and without dentin pretreatment on the shear bond strength of the resin composite to dentin mediated by total etching single bond adhesive system. Occlusal surfaces of 21 extracted human premolars teeth were grounded flat to expose dentin surfaces and were polished using 500-grit silicon–carbide paper. Teeth were randomly divided into 3 groups: Group 1- control, Group 2- Duraphat, Group 3- Bifluorid 12. After applying desensitizing agents and storing in artificial saliva for 7 days at 37°C, dentin surfaces were etched and bonding agent was applied. Then, incrementally composite resin was built up using plastic straw with dimension of 3mm diameter X 4mm height. The specimens were subjected to shear bond strength testing using Instron machine at crosshead speed of 0.5mm/min. The data were analyzed using Kruskal-Wallis test at a significance level of p<0.05. The results showed that the application of both desensitizing agents on dentin surfaces significantly reduced the shear bond strength of resin composite to dentin compared to the control group (p=0.001). Thus, it was concluded that the shear bond strength of resin composite to dentin will be reduced if dentin surface is treated with desensitizing agents.

A study of alveolar bone grafting in patient with congenital cleft of alveolus in HUSM

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Cleft is a split or fissure between two parts especially occurring during the embryonic development. Alveolar cleft is the cleft of the alveolus bone that supports the teeth in the jaw. Seventy five percentages of cleft lip and palate patients have osseous defects of the alveolus. The defect creates serious disruption of the dentition and collapse of the alveolar segment. Alveolar bone grafting mainly provides bony

tissue to facilitate teeth eruption and it also provides stability to the maxillary arch. The objectives of the study were to determine the prevalence of success alveolar bone grafting and complications following alveolar bone grafting at Maxillofacial Unit Hospital Universiti Sains Malaysia. This was a retrospective study. Patients' records were reviewed to collect the data. Thirty patients had alveolar bone grafting between 01.01.2001 and 01.02.2008. The success rate was determined using Bergland scale from occlusal radiograph taken at least 6 months after the surgery. Among the 14 clefts site assessed, 10 sites were considered successful which is 71.43%, confident interval (48%,95%). The prevalence of complication after alveolar bone grafting was 16.67%, confident interval (3%,30%). Out of 5 cases of complications, 3 were residual fistula (60%). Cancellous bone from the iliac crest was grafted to alveolar cleft defects in 30 patients (19 females, 11 males). Eighteen unilateral and 12 bilateral clefts were operated. The mean age at the time of operation was 15.7 years, with range of 9 -26 years.

Effects of lower third molar removal on attachment level and alveolar bone height of the adjacent second molar

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The purpose of this study wass to evaluate the periodontal status distal to the adjacent second molar following the extraction of a partially or fully impacted mandibular third molar at Klinik Pergigian Pakar, Hospital Universiti Sains Malaysia from April 2008 until June 2008. This was a prospective study which involved the clinical and radiological study of patients. In this study, convenience sampling method was used. The sample size was 22 patients aged 18-32 years old. The parameters used in this study were periodontal pocket depth (PPD), clinical attachment level (CAL) and alveolar bone height (ABH). Subjects were examined at distal surface (disto-buccal, mid-distal and disto-lingual) of second molar for PPD and CAL before and after the impacted adjacent lower third molar extraction. One OPG was taken, each before and after the third molar removal. These data were analyzed using SPSS version 16.0 and Wilcoxon-signed-ranks test**.** This study compared the PPD, CAL and ABH at three distal surfaces of second molar pre and post operatively. All the results were not significant with *p* value >0.05. For PPD, median = 3mm pre and post extraction. CAL median = 2mm pre and post operatively and ABH median, 3.10mm (before) and 2.8mm (after) the third molar removal. From this study, it was concluded that there were no significant changes of PPD, CAL and ABH at distal side of second molar after 3 months of the adjacent impacted lower third molar removal.

Salivary gland neoplasm in Hospital Universiti Sains Malaysia: a retrospective study

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There are three pairs of major salivary glands and numerous minor salivary glands in oral cavity. Salivary gland neoplasms make up from 3% to 10% of head and neck tumors. The objectives of this study were to determine the socio demographic profile (age, gender, and race), site and type of salivary gland neoplasms in Hospital Universiti Sains Malaysia from January 1991 to June 2008. This was a retrospective record review analysis of all the total 40 folders of patients with salivary gland neoplasms. Patient's age range was 15 - 76 years with the mean age of 48.3 (SD 15.3). Twenty two (55.0%) patients were females. Most of the patients diagnosed were in Malay ethnic group (85.0%). Benign neoplasms were more prevalent than malignant neoplasms (65.0%). Benign neoplasms occurred more in parotid gland (69.2 %); while maxilla was the most common site for malignant neoplasms (35.7%). The most common neoplasm was in parotid gland (52.5%). Pleomorphic adenoma was the most common type of salivary neoplasms 25 (62.5%). Recurrence after surgery reported in 53.8% of malignant salivary gland cases. In conclusion, salivary gland neoplasms seem to occur at earlier age in our population. Parotid gland was the most common site of neoplasms; and most of them are pleomorphic adenoma. An educational campaigns need to be done to ensure the control and early detection of neoplasm.

Arterial stiffness in patients with chronic periodontitis: a comparative cross-sectional study

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Chronic periodontitis (CP) is an inflammatory reaction which may cause endothelial damage and facilitate the thickening of fibrosed arteries, thus eventually may lead to the stiffness of arterial wall. The objectives of this study were to compare arterial stiffness measured as pulse wave velocity (PWV) between subjects with CP and normal and between subjects with and without alveolar bone loss. This was a comparative cross-sectional study involving 32 subjects (16 CP and 16 normal). Selection of cases was done by screening subjects to meet specified criteria at Hospital Universiti Sains Malaysia dental clinic. Periodontal examination

and orthopantomogram was done and aortic stiffness (PWV) measured using Complior. Diagnosis of normal and chronic periodontitis was made based on periodontal pocket depth and alveolar bone loss. The mean of PWV between subject with CP (8.5 (SD 1.02) m/s) and normal (7.1 (SD 0.57) m/s) were significantly different (p<0.05). Subjects with bone loss were 20 (62.5%) and without bone loss were 12 (37.5%). The median of PWV between subject with bone loss (8.0 (IQR 1.6) m/s) and without bone loss (7.3 (IQR 0.7) m/s) were significantly different (p<0.001). Among subjects in present study, aorta was stiffer in chronic periodontitis and also in subject with bone loss. However, further randomized clinical studies are required to prove the link between chronic periodontitis and arterial stiffness.

POSTER PRESENTATIONS

The prevalence of tongue lesions in association with age and sex in Dental Clinic, Hospital Universiti Sains Malaysia

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Lesions of the tongue have broad differential diagnoses ranging from benign idiopathic processes to infections, cancers, and infiltrative disorders. However, localized, non-systemic tongue lesions are much more commonly encountered. A number of conditions included under benign tongue lesions are considered to be normal variants with multi-factorial etiologies. The aim of this study was to determine the prevalence of tongue lesions in association with age and sex in Dental Clinic, Hospital Universiti Sains Malaysia (HUSM). A total of 75 patients (46 female and 29 male) who attended Dental Clinic, HUSM from 1st to 22nd June 2008, aged 4 to 74 years old were examined. The age, sex and tongue lesions diagnosed were recorded. Of 75 subjects, 54 (72%) subjects were detected as having tongue lesions with a prevalence of 79.3% and 67.4% for male and female, respectively. Fissured tongue was the most frequent lesion encountered (38.9%), while crenated tongue and papillary atrophy were the least common lesions observed, 1.9% each. No data collected for median rhomboid glossitis, making it the rarest lesion encountered amongst all. Hairy tongue occurred in 7.4%, coated tongue in 20.4%, geographic tongue in 7.4%, macroglossia in 13% and ankyloglossia in 9.3% of the subjects examined. From this study, no strong association was found between tongue lesions occurrence with the age and sex of the patients who attended Dental Clinic, HUSM.

An in vitro genotoxicity study of silver amalgam on Ames test

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The objective of this study was to assess the genotoxicity of silver amalgam/Silverfil Argentum® by using Ames test. This was a descriptive experimental study involving one strain of mutated *Salmonella*. The genotoxicity effect of the tested material was evaluated by using *Salmonella typhimurium* strain TA1538 with and without an external metabolic activation system (S-9 mix). The bacteria were incubated for 48 hours at 37±0.5°C before the revertant colonies growth was counted. Data obtained was analyzed by using non-statistical method which consisted of positive, negative and inconclusive result. For this study the results were considered negative because the genotoxic reaction on the test material revealed that the number of revertant colonies in the strain with and without metabolic activation were less than twice that of the negative control even in the presence of high concentration (5.0 µg/ml) of silver amalgam. This study demonstrated that the test material did not exhibit any mutagenic activity under the chosen conditions. Thus, silver amalgam could be considered to have no genotoxicity effect.

In vitro study of antibacterial properties of dental materials towards *Streptococcus sobrinus* and *Lactobacillus salivarius*

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Dental restorative materials may not be able to provide a perfect seal from microorganism from penetrating the cavity walls, thus lead to formation of secondary caries. Thus, presence of antibacterial properties in dental restorative materials can give a great significance in preventing formation of secondary caries. The objective of this study was to assess the antibacterial effects of dental restorative materials, namely; amalgam (Silverfil®), resin-modified glass ionomer cement (Ketac Nano®), composite resin (Amaris®) and glass ionomer cement (Inofil Molar®) against *Streptococcus sobrinus* and *Lactobacillus salivarius*. Agar Diffusion Test (ADT) was used in this study. Dental materials used were tested upon *Streptococcus sobrinus* and *Lactobacillus salivarius* on Brain Heart Infusion Agar. Zone of inhibition exhibited by the materials were measured with digital caliper and data was analyzed by Kruskal Wallis and Man-Whitney Test. Results showed that Silverfil® amalgam had the greatest antibacterial properties on *Streptococcus sobrinus* with minimum inhibition zone of 22.4mm (SD 1.10) and *Lactobacillus salivarius* 12.0mm (SD 2.00) respectively. Amaris® composite resin exhibit an antibacterial activity in *Lactobacillus salivarius* 8.9mm (SD 1.37) but none in *Streptococcus sobrinus*. *Streptococcus sobrinus* was more sensitive towards Silverfil® amalgam, Ketac Nano® resin-modified glass ionomer cement and Ionofil Molar® glass ionomer cement with a significant difference ($p<0.05$) except for Amaris® composite resin which was more sensitive toward *Lactobacillus salivarius*. In conclusion, all materials showed antibacterial properties toward *Streptococcus sobrinus* except Amaris® composite resin and all materials exhibit antibacterial properties toward *Lactobacillus salivarius*. Silverfil® amalgam showed the greatest antibacterial properties on both microorganisms tested.

Note: Underlined names indicate presenting authors.

Antibacterial effect of high molecular chitosan from *Limulus polyphemus* against *Fusobacterium nucleatum*

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A research was carried out to investigate the antibacterial effect of high molecular chitosan (HMC) from *Limulus polyphemus* as root canal dressing material compared to commercial chitosan and calcium hydroxide as positive control against *Fusobacterium nucleatum.* This research started with dilution method to determine the range values of MIC (Minimum Inhibitory Concentration) and MBC (Minimum Bactericidal Concentration) for all trial materials. Eight samples of pure culture of *Fusobacterium nucleatum* were respectively diluted in 2.5%, 5% and 10% concentration of HMC; 2.5%, 5% and 10% concentration of commercial chitosan; and 0.5% and 1% concentration of calcium hydroxide in order to determine the value of MIC. This was followed with the placement in Mueller Hinton Agar media in CO_2 incubator at temperature 37°C for 24 hours to determine the concentration of MBC. All trial materials had the antibacterial effects and the differences were seen from the values of MIC and MBC. The MIC and MBC values of high molecular chitosan from *Limulus polyphemus* is similar to commercial chitosan which is 10% concentration, and 1% concentration for calcium hydroxide. It shows that the higher the concentration, the higher the antibacterial effect of high molecular chitosan from *Limulus polyphemus.* This research showed that high molecular chitosan from *Limulus polyphemus* in pure powder has antibacterial effect against *Fusobacterium nucleatum* without adding the solvent material.

Three dimensional computed tomography (3D-CT) study of the mandibular foramen in Malay adults

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Mandibular foramen (MF) is one of the most important anatomical landmarks in the mandible. Knowing the exact location of MF is crucial especially in the administration of mandibular anesthesia, surgical intervention of the ramus and placement of implants. This study was performed to investigate the precise location of MF as well as to examine the differences of its location between the left and right sides of the mandible and between males and females. This was a retrospective study based on CT collected from CT database available at the Radiology Department, Hospital Universiti Sains Malaysia. Subjects were Malay adults with no craniofacial abnormalities. A total of 67 head and neck scans were collected. CT images were of high resolution and reconstructed into 3D. Analyses were performed using MIMICs v7.0 (Materialise Corp., Belgium), where seven landmarks on each side of the mandible were determined and distances from these landmarks to MF was measured. Descriptive statistics including means, standard deviations, minimum and maximum values for each variable were calculated separately for males and females. There were no statistically significant differences between the left and right measurements for both males and females. Most measurements (83.3%) showed males to have larger measurements than females. Additionally, there were no statistically significant systematic and random errors detected. In conclusion, the location of MF was highly variable amongst the Malay subjects. The position of MF was more or less symmetrical as no differences detected between the left and right sides. Furthermore, its position also showed evidence of sexual dimorphism.

A comparative study on the accuracy of the dental impression material

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Many types of new impression materials have been marketed and the most popularly used were polyvinylsiloxane and polyethers. The purpose of this study was to assess the accuracy of impression materials on prepared frasaco teeth as well as the differences between the tested materials. Impressions were taken on the prepared molar and premolar teeth on a mandibular frasaco set by using Impregum Penta Soft and Express XT impression material. Thirty samples of each material used for impression and gypsum dies were produced. The bucco-lingual and mesio-distal dimensions of the dies were measured with the digital caliper. There were significant differences in the dimensional changes between the Impregum material, 10.45mm(SD 0.08) and Express XT material, 10.40mm(SD 0.06) from the original preparation. However, the range of changes (0.01mm to 0.12mm) in the dies from the original preparation were very small and these may not be clinically important. Meanwhile, Express XT showed better result compared to Impregum in the measurement of molar on mesio-distal dimension and in the measurement of premolar on bucco-lingual dimension. The other variables revealed no significant differences between the tested materials. In conclusion, study showed that there were differences between the tested material and original preparation but these may not be clinically important. Express XT demonstrated dimensional accuracy equivalent to Impregum and both impression materials demonstrated sufficient accuracy to enable them to be used clinically.

The effect of light-emitting diode (LED) and halogen light curing unit (LCU) on the microleakage of Class V composite resin restorations

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Microleakage as a result of polymerization shrinkage is a major drawback in composite resin (CR) restorations. This study aimed to compare the microleakage of Class V CR using two types of CR with two types of light curing units. Sixty permanent upper premolars were used where two class V cavities (3 millimeter (mm) x 2 mm) with the occlusal and gingival margin ended 1mm above and below cemento-enamel junction were prepared on the buccal and lingual surface of each tooth. The 120 cavities were divided randomly into four groups (n=30). Cavities in group one and three were restored with nanocomposite while cavities in group two and four were restored with microhybrid. Cavities in group one and two were cured using LED LCU while cavities in group three and four were cured using halogen LCU. The samples were then immersed in 0.5% methylene blue dye for 24 hours and sectioned longitudinally. Microleakage at the occlusal and gingival margin was quantified in mm using stereomicroscope at 40x magnification. Data were analyzed using Mann-Whitney test and results with $p<0.05$ were considered significant. No significant differences in microleakage score were observed between use of different LCUs and different CRs. Both types of CRs cured using halogen LCU showed statistically significant difference in microleakage score at the occlusal and gingival margin ($p<0.05$). In conclusion, microleakage was still present in both types of CRs cured using both LCUs. However, nanocomposite cured using LED LCU showed the least microleakage score.

The comparison of the effect of staining to two types of composite resins

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Composite resins Amaris is claimed to have hydrophobic effect which minimizes the staining intake. This study aimed to investigate the color stability of Amaris compared to Filtek Z250 using two staining solutions. Hundred and twenty discs of composite resins with diameter of 5mm and depth of 2mm from Filtek Z250 (3M ESPE) and Amaris (Voco) were fabricated by packing in a drinking straw and sectioned with hard tissue cutter (Exakt, Japan). The specimens were then divided into 4 groups of 30 and the surfaces were polished with Sof-Lex disc. Each subgroup of the samples was immersed into either Malaysian local coffee solution or Nescafe solution. They were kept in each solution for 4 days at 37°C and assessed at the period of 2 hours, 1 day, 2 days, 3 days, and 4 days. The staining was assessed visually and recorded using Lobene (1968) Stain Index and score was given accordingly. The color changes of composite resins showed that all groups showed no statistically significant differences ($p<0.05$) after immersion periods of 2 hours, 1day, 2 days and 4 days except at day 3 in coffee solution when Amaris was significantly less stained. All four groups showed the score values increased gradually with time. In general, Nescafe solution gives better staining effect than coffee even though not statistically significant. Both composite resins have similar color stability in both local coffee and Nescafe solutions.

Type of treatment for paediatric dental patient carried out under general anesthesia in Hospital Universiti Sains Malaysia

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Dental treatment under general anaesthesia is needed for some children and adolescent due to medically handicapping conditions and behavior problems. The objective of this study was to identify the type of dental treatment that had been carried out under general anaesthesia in Hospital Universiti Sains Malaysia (HUSM) and to determine the reason for referral of dental treatment under general anaesthesia. A retrospective record review study from hospital records of paediatric dental patients who had undergone dental treatment and procedure under general anaesthesia from 2003 until 2007 had been reviewed. The data were analyzed using SPSS software version 12.0.1. A total of 349 cases were treated and they were more male patients (58.5%) as compared to female patients (41.5%). Many patients were treated under general anaesthesia due to medical problems (43.6%) and some due to behavior problems (34.4%). Treatment pattern in deciduous dentition revealed more extractions (97.8%) were done as compared to restorations (75.7%) where as in permanent dentition more restorations (24.3%) as compared to extractions (2.2%). Majority of the restoration were done using glass ionomer cements (44.1%). General anaesthesia is necessary when dental disease is interfering with health and general well-being of the patient and it can facilitate dental treatment allowing dentists to benefit from improved treatment conditions and provide a higher quality of care.

Prevalence of human papilloma virus infection in the oral cavity of denture wearers

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Denture wearers may present with a variety of intraoral diseases such as denture stomatitis, angular cheilitis, traumatic ulcers, denture irritation hyperplasia, flabby ridges and oral cancer. Usually these oral diseases are related to the denture itself. Few studies have shown that HPV may be the culprit mainly in causing oral cancer and denture fibroma. The objective of this study was to determine the prevalence of Human Papilloma Virus in the oral cavity of denture wearers. This study involved buccal swabs collection from denture bearing area of 72 denture wearers and 72 non-denture wearers (controls). Amplification of β-globin gene was performed by polymerase chain reaction (PCR) to check the integrity of DNA. Presence of HPV were detected using a nested PCR with MY09/11 and GP5+/6+ set of primers from the L1 consensus region of the virus. The prevalence of HPV was significantly higher in the oral cavity of denture wearers (38/72, 52.8%) than in non-denture wearers (17/72, 23.6%; OR=3.612, CI=1.771/7.385, p<0.001). There was a significant association between HPV positive and smoking (13/17, 76.5%; p=0.025) in denture wearers. However no significant association was found between HPV positive and age, gender, type of denture, type of denture material, duration of wearing denture and denture hygiene in denture wearers. In conclusion, our result showed that the prevalence of HPV was significantly higher in the oral cavity of denture wearers than in non-denture wearers.

The effect of toothpaste containing the extract of *kayu sugi* upon plaque growth

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Although many researches done had revealed the beneficial effect of *kayu sugi* as a chewing stick, study on the effectiveness of its extract added in toothpaste is still inadequate. The objective of this study was to compare the effect of toothpaste, with and without *kayu sugi* extract on preventing plaque formation. The study consists of two sessions which was separated by three days washout period. The subjects were given two types of toothpaste, with and without *kayu sugi* extract to be used in the first and second session separately. The subjects were asked to brush their teeth and plaque score were measured after one hour for the first quadrant, two hours later for the second quadrant and after four hours for the third/forth quadrant. Subjects were not allowed to eat, drink or rinse during this four hours period. The procedures were repeated for the second session after three days washout period. The plaque score were recorded as absent (code 0) and present (code 1), and only labial and palatal/lingual surfaces of each tooth were used for plaque scoring. The study showed that there was no significant difference of the amount of plaque formed after brushing using two different toothpastes, with and without *kayu sugi* extract. It is concluded that toothpaste with or without *kayu sugi* extract give similar level in preventing plaque formation.

Transmission of human papilloma virus from cervical cancer patients to their children

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Human Papilloma Virus (HPV) has been identified as the main cause of cervical cancer and recently its association with oral cancer has been established. It is well known that HPV transmits mostly by sexual contact while other route of transmission such as vertical transmission from mother to their children have also been proposed but still poorly understood. The objective of this study was to detect the presence of high-risk HPV in the oral cavity of children of women with cervical cancer. This was a cross sectional study which involved buccal swabs from 34 children of 19 cervical cancer patients using Hybrid Capture® 2 HPV DNA Test Sampler™ collection devices. Presence of High-Risk HPV was detected using Digene's Hybrid Capture 2® HPV Test Machine. This test principally involves released and denaturation of nucleic acids, hybridation of RNA probe with target DNA which then captured onto a solid phase and reacted with multiple antibodies conjugates. Amplification of chemiluminescent signals was used to detect the presence of HPV. The children examined ranged from the age of 5 to 18 years old with 18 males and 22 females. All of them were Malay and born through vaginal delivery. High Risk HPV was not detected in any of the 34 samples (0%). In conclusion; our findings suggest that there is negligible risk for the children of cervical cancer patients to acquire high-risk HPV from their infected mothers.

A retrospective study on impacted mandibular third molars presentation at Hospital Universiti Sains Malaysia

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Surgical removal of impacted mandibular third molars is a common procedure in oral and maxillofacial surgery. The aim of this study was to identify the position of impacted mandibular third molars based on the classifications of Pell and Gregory, and Winter, the indications of extraction, and the post operative complications after surgical removal of impacted teeth related to their position. The study involved a retrospective record review on dental case notes of patients who attended Hospital Universiti Sains Malaysia for surgical removal of mandibular third molar. The indications for extraction and occurrence of post operative complications were recorded. The angulation, width and depth of impaction were determined by observing the orthopantomogram (OPG) of the patients. Total of 238 impacted teeth were surgically extracted from 194 patients (male and female ratio was 1:1). The main reason of extraction was recurrent pericoronitis (85 cases; 35.7%) followed by elective surgery (orthodontic purposes or prophylactic reason) (71 cases; 29.8%). Mesioangular impactions amounted to 103 teeth (52.3%) and class IIA position of impaction amounted to 90 teeth (45.7%). The most common complication was persistent pain and swelling (29 cases; 14.7%), followed by trismus (8 cases; 4.1%) and dry socket (6 cases; 3.0%). There was no significant relationship between the angulation, width and depth of impaction and the occurrence of complication. Mesioangular type of impaction is the most common type of impaction. Although the association was not significant, high frequency of post operative complications was observed in mesioangular, horizontal, IIA and IIC.

In vitro study comparing microleakage of AH26® endodontic sealer by using the different techniques of sealer placement

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Sealer is important in endodontic treatment to provide the seal between the core filling material and canal walls. Different sealer placement techniques may influence the overall sealing ability of endodontic treatment. The objective of this study was to evaluate the level of microleakage of an endodontic sealer following different techniques of its placement. This *in vitro* study involved 98 permanent human anterior teeth, which were non-carious, straight-rooted and free from any defect. The teeth were sectioned at the cervical margin, followed by standard canal preparation technique by using manual Protaper® instrumentation up to size F2 file. Irrigation was performed by using NaOCl solution. The samples were then divided into three equal groups according to the sealer material placement techniques; rotary lentulo spiral, manual lentulo spiral, and master gutta percha coating. Obturations of all teeth were performed by using lateral and vertical condensation techniques following respective techniques of sealer placement. The samples were then immersed in methylene blue solution for seven days, longitudinally sectioned and analyzed by using a digital stereomicroscope. There were no significant differences in mean microleakage values among all the groups (*p=0.305*). The mean microleakage value for each group; rotary lentulo spiral, manual lentulo spiral and master gutta percha coating were 4.5mm (SD 2.33), 3.9mm (SD 1.91) and 3.8mm (SD 2.09) respectively. In conclusion, there was no significant difference in microleakage of endodontic sealer when different techniques of sealer material placement were used.

The odontoblast density in the crown and root of single rooted human teeth

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Density of odontoblast presents in the pulp reflected scale of pulp reparative responses as a result of trauma from restorative treatment or caries. Hence there is need to study the odontoblasts density since previous studies are lacking in data regarding the precise odontoblast density, changes in different pulp cell populations, rate of physiological secondary dentinal formation and odontometric analysis of pulp chamber occlusion in human teeth. The purposes of this study were to measure and to compare the odontoblast density in the crown and root of single rooted human teeth. The teeth which were collected from Hospital Universiti Sains Malaysia (HUSM) Dental Clinic fixed for overnight in 10 % formalin and decalcified in 10 % nitric acid, before tissue processing and paraffin embedding done. Sectioned samples stained with hematoxylin and eosin. Odontoblasts count under light microscope at the root and crown lingual and labial position using tissue processing grid. All data analysed using SPSS version 12 with Kruskal-Wallis test. The means odontoblasts density on labial crown 316.94 cells/mm pulp dentinal border, lingual crown 301.28 cells/mm pulp dentinal border, labial root 272.02 cells/mm pulp dentinal border and 261.07 cells/mm pulp dentinal border. Thus, it is concluded that the labial crown has the highest odontoblasts density while lingual root has the lowest odontoblasts density.

Three dimensional computed tomography (3D-CT) study of the metopic suture in Malays

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Metopic suture is one of the sutures in the skull extending from nasion to bregma. This suture normally presents at birth and disappears at later ages. It may also persist well into adulthood in a condition known as metopism. The most important clinical significance of metopism is that it may be confused with a vertical traumatic skull fracture. Moreover, the incidence of metopism varies amongst races. Hence, this study aimed to determine the timing of metopic suture closure and the occurrence of metopism in Malays. This was a retrospective study based on CT collected from CT database available at the Radiology Department, Hospital Universiti Sains Malaysia. Subjects were Malays with no craniofacial abnormalities. Infants and children aged between 0 to 4 years (n=61) were selected to determine the suture closure whereas adults aged between 18 to 40 years (n=63) were gathered to examine the incidence of metopism. CT images were of high resolution, reconstructed into 3D and analysed using Advantage Workstation. The metopic suture was noted to start fusing as early as 3 months of age. The mean age of fusing stage was 7.1 months. The suture was observed to completely fused from the age of 8 months and beyond the age of 15 months, all subjects showed that it has completely fused. Investigation in adult Malays failed to reveal any evidence of metopism. In conclusion, the metopic suture completely fused fairly early in Malay infants and there is no evidence of metopism occurring in Malay population.

The prevalence of tooth wear patterns and their etiologies in adult patients attending Hospital Universiti Sains Malaysia Dental Clinic

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Tooth wear is a condition where there is loss of tooth tissue and structure not due to caries. It can occur in individuals in few forms like attrition, abrasion, erosion, abfraction or combination of two or more of them. The objective of this study was to determine the prevalence of tooth wear patterns and their possible etiologies in some of Kelantanese people by examining adult patients who attended HUSM. This cross-sectional study involved 81 adult patients who had tooth wear problem. They were randomly selected from out-patient dental clinic in HUSM. The assessment was visualized by using Smith and Knight Tooth Wear Index (TWI) and pattern of tooth wear of each subject were identified. A preformed questionnaire was used to seek out possible etiologies of the wear problem. Data were analyzed and the results were expressed as frequencies and percentages. From the 81 patients with tooth wear, 50 (61.7%) had attrition; 4 (4.9%) had abrasion; 1 (1.2%) had erosion while 26 (32.1%) had combined type and none of them had abfraction. In the attrition group, high number of patients liked to eat shellfish 'etak'. For abrasion type, many of them practiced vigorous improper tooth brushing technique and the erosion was related to the frequency and the way subject took carbonated drinks or beverages. In conclusion, half of the subjects that had tooth wear problem experienced attrition and the highest possible etiology could be attributed to eating 'etak'.

Neurogenic differentiation of stem cells from human extracted deciduous teeth

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Stem cells from human extracted deciduous teeth (SHED) were identified to be a population of highly proliferative, clonogenic cells capable of differentiating into a variety of cell types including neuron-forming cells. They serve as an unexpected unique resource for stem cell therapies including autologous stem cell transplantation and tissue engineering. The objective was to study the neurogenic differentiation of SHED cultured in a neurogenic medium which can be used as a possible source for tissue engineering. SHED were cultured in a neurogenic medium containing Neurobasal A (GIBCO/BRL), B27 supplement (GIBCO/BRL), 1% penicillin, 20 ng/ml epidermal growth factor and 40 ng/ml fibroblast growth factor (FGF). Confirmation of SHED was done by detecting cell surface marker CD166 on SHED via flow cytometry test. Presence of differentiated neuron-forming cells from SHED was confirmed by detecting neurofilament-L protein (NF-L) and microtubule associated protein 2a&b (MAP 2a&b) on differentiated neuron-forming cells via immunohistochemistry test and immunofluorescence test. Flow cytometry test showed that SHED expressed cell surface marker CD166 which is a mesenchymal stem cell marker. The induced cells displayed typical neuron-like cells morphology. Immunohistochemical and immunofluorescent staining showed that the induced cells expressed neurofilament-L protein (NF-L) and microtubule associate protein 2a&b (MAP 2a&b) on neuronal axons and neuronal cell bodies respectively. This study demonstrated that SHED can differentiate into neuron-forming cells. SHED could be a more accessible and possible source for stem cells transplantation and tissue engineering in the future.

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Effect of monomers ratio on mechanical properties of experimental nanocomposite

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Bisglycidyl dimethacrylate (BisGMA) and Triethylene glycol dimethacrylate (TEGDMA) are the most commonly used resin monomers in composite restoration. The objectives of the study were to determine the effect of BisGMA: TEGDMA ratio on flexural and compressive strengths of the experimental nanocomposite and the distribution of their nanosilica fillers. Firstly, synthesized fillers were silanized with 3-Methacryloxy-propyltrimethoxysilane (γ-MPS). Two groups of nanocomposites at different BisGMA: TEGDMA ratio were fabricated by hand-mixing which are group 1 (60:40) and 2 (50:50). 30 wt% nanosilica filler loading were used for both groups. Filtek Z350 (3M ESPE) was used as control. Ten samples for each group of nanocomposites were packed in stainless steel mould and light-cured for 40 seconds on top and bottom surfaces. Flexural and compressive strength of the nanocomposites were measured using Instron 8874 Universal testing machine. One sample from each group used for SEM evaluation. The result showed mean flexural strength for group 1, 2 and control were 42.30(7.32)MPa, 52.99(11.32)MPa, and 100.85(32.96)MPa respectively and mean compressive strength for group 1, 2 and control were 131.91(52.96)MPa, 127.86(41.16)MPa, and 323.39(38.29)MPa respectively. The results found no significant difference between both groups of experimental nanocomposite in flexural and compressive strengths. SEM evaluation showed nanosilica particles of the experimental nanocomposite were not uniformly distributed. It was concluded within this study, the resin monomer ratio used did not show significant association with the flexural and compressive strength of the experimental nanocomposite, and the distribution of nanosilica particles in the experimental nanocomposite responsible for lower mechanical properties of the nanocomposite.

The prevalence of systemic conditions in patients with periodontal disease attending HUSM Dental Clinic

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Periodontal diseases are oral disorders characterized by infection and inflammation of the supporting structures of teeth including periodontal ligament, cementum, and alveolar bone. Many studies have shown the significant relationship between the periodontal disease and systemic conditions such as diabetes mellitus and hypertension. The objective of the study was to determine the prevalence of systemic diseases in patients with periodontal disease and to assess the association between periodontal disease and systemic diseases. This was a retrospective record review analysis of periodontal patients treated in HUSM dental clinic from January 2007 to June 2008. Three hundred and seventy patients with mean age 39.25(14.20) were selected based on inclusion and exclusion criteria. Periodontal diagnosis and systemic disease were recorded. Periodontal diagnosis was divided into gingivitis and chronic periodontitis (mild, moderate and severe) according to probing pocket depth. Data obtained was then analyzed using SPSS version 12.0. Majority of the subjects were Malays. The prevalence of systemic diseases in periodontal patients was 30.5% comprising more of hypertension and diabetes mellitus. This study demonstrated that chronic periodontitis was significantly associated with hypertension and diabetes mellitus ($p<0.05$). However, the severities of chronic periodontitis were not associated with all systemic disease ($p>0.05$).