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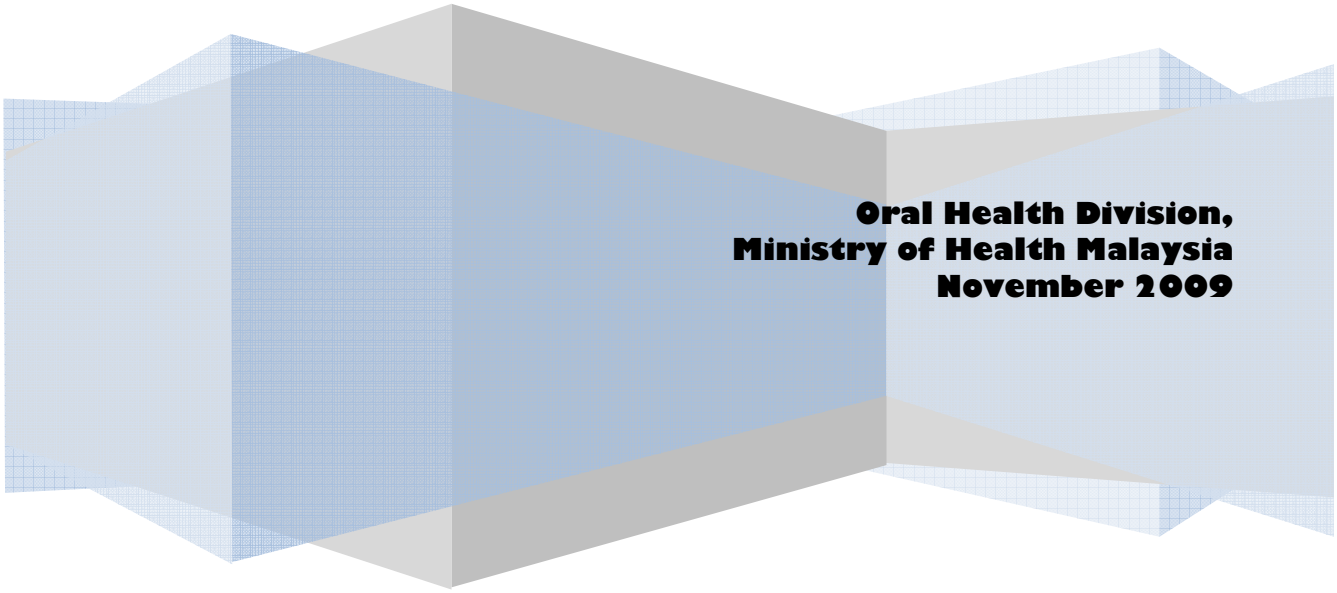
A Compendium of Abstracts 2008

Research Projects and Publications of Oral Health Personnel, Ministry of Health Malaysia



Oral Health Division,
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FOREWORD
BY THE PRINCIPAL DIRECTOR OF ORAL HEALTH
MINISTRY OF HEALTH MALAYSIA

Having superseded a decade's compilation of the 'Compendium of Abstracts for the Oral Health Division, Ministry of Health Malaysia', this compilation heralds the start of another journey in the collation of research outputs by oral health personnel of the Oral Health Division. This annual compilation serves its purpose in not only showcasing the research efforts of our personnel but it also provides the answers to relevant scientific inquiries.

In terms of research identification and prioritization, it is the earnest desire of the Oral Health Division that due attention be given to undertake research that are priority areas of concern in the conduct of research at the grassroot levels. Appropriate research will impact on how we can further improve oral healthcare delivery and the oral health status of the population This in line with the thrust for oral health research in the Oral Health Division.

This publication brings together a total of 84 abstracts and I take note that many of the studies showcased have taken on more robust study designs. It also gives me immense pride that of these, 44 had been presented at international scientific conferences held in Malaysia in the year 2008 and 5 were publications in journals. Pursuance of a higher publication rate remains a challenge and may I exhort researchers concerned to earnestly go beyond this in-house publication alone.

I take this opportunity to extend my sincere appreciation to all personnel who has walked the extra mile in conducting oral health research towards the improvement of oral healthcare in the country. To all whose projects are showcased in this document may I heartily commend you for this laudable effort. And last but not least, to all who have painstakingly put together this compendium, may I extend my warm appreciation to each and every one of you.

DATO' DR. NORAIN BINTI ABU TALIB
Principal Director
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EDITORS' NOTE

Once again, effort is taken to collate the research output of oral health personnel from health systems research, presentations at local and international scientific meetings, submissions to the Director General of Health, Ministry of Health Malaysia for approval for publication, scientific papers published and other research works of oral personnel reported to the Division in 2008.

In keeping to the scientific content of abstracts for this publication, The Oral Health Division also reserves the right and discretion to edit and modify abstracts for clarity, length and grammar. Due attention has also been accorded to standardize formats in compliance to the requirements of this publication.

The more usual convention of abbreviating names of authors with the surname in full, followed by initials of the first and middle names shall be used; Muslim names are abbreviated with the first name in full followed by initials of father's name.

The non-inclusion of any research work not reported to this Division in 2008 is regretted.

The Editors
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RESEARCH
IN
PROGRAMME EVALUATION

A COST-EFFECTIVENESS ANALYSIS OF GLASS-IONOMER CEMENT AS A FISSURE SEALANT IN A SCHOOL-BASED FISSURE SEALANT PROGRAMME IN THE DISTRICT OF PONTIAN

Habibah Y, Mazlan Abdullah, Naing L, Mohd Rashid I

Objectives: The objectives of this study were to determine the status of the occlusal surface of lower left first permanent molars (FPM) in sealed and unsealed group after a 5-year follow up, to determine the extra cost for the sealed group, cost of complication and cost per averted occusal caries for both groups and to compare the status of lower left first permanent molars between sealed and unsealed groups. **Methodology:** This was a retrospective cohort study conducted in Pontian from 1998 to 2003. There were two phases in the study. Phase 1 of the study was planned for descriptive and cost analysis involving 618 subjects with high caries risk. Phase 2 of the study had a questionnaire component involving 322 schoolchildren with high caries risk. The study for Phase 1 focused on dental treatment records (LP 8) and financial data from the administrative office. For Phase 2, randomly selected subjects were given a questionnaire on socio-demographic status. Costing analysis was done based on the fissure sealant programme only. **Results:** The total retention rate of glass ionomer cement (GIC) as fissure sealant in this study was 67.4% and the total loss was 32.6% after 5 years of sealant application. The percentage of sound occlusal lower left FPM in the sealed group was 88.4% and 76.8% for the unsealed group. There were 11.6% of sealed teeth and 23.3% of unsealed teeth which developed caries after a 5-year follow up. For cost analysis, the extra cost for the sealed group was RM1,295.36, cost complication for the sealed group was RM988.83, cost complication for the unsealed group was RM1,927.10 and lastly cost per averted occlusal caries in the sealed group was RM8.37 (95%CI : 8.03;8.72) and cost per averted occlusal caries in the unsealed group being RM8.35 (95%CI : 7.98;8.72). A significant association was found between the status of occlusal lower left FPM of sealed and unsealed group with other associated factors being controlled at both univariate (Crude OR=1.78, 95%CI: 1.02;3.07) and multivariate analyses (OR=1.91, 95% CI: 1.05;3.49). **Conclusion:** The retention rate of GIC in this study was low. The occlusal status of the lower left first permanent molars with fissure sealants had better caries prevention than the unsealed group which had a higher chance of developing caries. Considering the health gains in terms of caries reduction and the benefit enjoyed by those receiving fissure sealant, it is concluded that the fissure sealant programme is cost-effective although the total calculated cost is slightly higher.

Keywords: cost-effectiveness, glass-ionomer cement, fissure sealant, school-based fissure sealant programme

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A CRITICAL EVALUATION OF THE PRESENT STRATEGY FOR ORAL HEALTH OF PRESCHOOL CHILDREN IN MALAYSIA

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Dental caries remains a significant public health problem among preschool children in Malaysia. Although there have been some improvement in the oral health status, a significant number of preschool children still suffer from dental caries. This is despite of the presence of fluoridated water supply and a well planned dental care system in Malaysia. The aim of this study was to review the current oral health strategy for preschool children in Malaysia and to make recommendations to improve them. A comprehensive review of the treatment and preventive programmes in Malaysia was undertaken. A critical review of evidence-based public health approach for example, the implementation of healthy school programme to the preschool setting would have a significant impact to achieve sustainable improvement in oral health.

Keywords: evaluation, oral health strategy, preschool

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EFFECTIVENESS OF SCHOOL-BASED DENTAL HEALTH EDUCATION IN PRIMARY SCHOOLS IN THE DISTRICT OF KULIM, KEDAH

Saadiah S

Objective: The aim of this study was to evaluate the effectiveness of school-based dental health education in primary schools by assessing the changes in oral hygiene status, the mean increment in DMFX and to assess the number and location of schools with improvement or sustainance of oral health status after 6 years. **Methodology:** This is a longitudinal study where data was collected on school children in 14 urban and 22 rural primary schools through the Increment Dental Care Programme from the district of Kulim. Baseline data was collected when the students were in Year 1 (2000) and follow-up data of the same student were collected when they were in year 6 (2005). The outcome measures were oral hygiene status and caries increment between urban and rural schools. **Results:** The oral hygiene status for urban schools were as follows; 9 schools had improved (64.3%), 4 schools had deteriorated (28.6% of urban schools) and the status of one school (7.1% of urban schools) remain unchanged. As for the oral hygiene of rural schools; 11 schools had improved (50% of rural schools) and 10 schools had deteriorated (45.5% of rural schools). In terms of caries increment per student, all urban schools had less than one tooth becoming carious except for one school with an average increment of 1.34 over the six-year period. The average caries increment for urban schools was 0.54 as compared to 0.96 for rural schools. There were also 9 schools out of 22 rural schools with an average caries increment of more than 1.0. There was a statistically significant difference in mean caries experience between rural and urban schools. For oral hygiene status, there was a considerable improvement. However, these large improvements do not seem to have any effect on the caries increments observed. **Conclusion:** There was an overall improvement in oral hygiene status of children after 6 years of conducting dental health education. This could be due to the reinforcement of dental health education programme every year. For the few schools where the oral hygiene had deteriorated, more input may be required. There is no evidence that school-based dental health education have any effect on the average caries increment. Overall, the findings of this study showed that urban school children have better oral health status than rural school children and dental health education had a better effect on urban school children compared to rural school children.

Keywords: dental health education

Paper presented at 6th Conference of Pediatric Dentistry Association of Asia, 10-12 July 2008 at Berjaya Times Square Hotel and Convention Kuala Lumpur, Malaysia

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A LITERATURE REVIEW: THE COST EFFECTIVENESS OF DENTAL SEALANTS

Ramalingam SR

Despite a large amount of literature supporting the efficacy of dental sealants in preventing occlusal caries, their slow adoption in general practice and public health programs is attributed partly to “poor cost-effectiveness”. This paper reviewed the literature relating to the cost-effectiveness analysis (CEA) of dental sealants. CEA implies a comparison of the cost of an intervention with its effectiveness. CEA is used to compare the relative costs of programs that could be selected to achieve a stated objective or to determine the least expensive way of reaching a defined outcome. Clinical trials, theoretical studies, demonstration programs and retrospective analyses have various problems; such as sealant materials with a low retention rate, the choice of comparative procedures, the calculation of cost and outcome component, lack of discounting for time or sensitivity analysis. Study results were mixed, dependent on the relevant factors. Factors that affect the cost-effectiveness of sealants include: caries prevalence of the community, diagnostic accuracy, costs of sealants and alternatives, longevity of sealants of restorations, and selection of patients and teeth to be sealed. An appropriate answer for the cost-effectiveness of sealants will likely vary from place to place and through time as the relevant factors change. Decision of a sealant delivery strategy should be made at community levels based on the balance of these factors. Dental public health directors could enhance the cost-effectiveness of sealants by using the most modest equipment and facilities, advance sealant materials as well as trained auxiliaries to apply the sealants.

Keywords: dental sealants, cost-effectiveness

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SELANGOR SCHOOL DENTAL SERVICE: WHAT'S NEXT?

Mazlina MD, Maimunah AR, Nomah T, Cheng LC, Norhaslina MH, Norashikin MY

Introduction: The Oral Health Division in Selangor state renders oral healthcare services through a network of primary and specialist oral healthcare with schoolchildren being one of the target groups. Under the Incremental Dental Care program for schoolchildren, utilization of primary oral healthcare facilities has increased amongst the school children. This study was aimed at providing an insight into the achievements of the Incremental Dental Care program for schoolchildren from 2003-2007. **Objectives:** The aim of this study was to describe the coverage, the 'orally fit status' and the caries -free mouth status (CFM) among primary and secondary schoolchildren in Selangor. These measurements are compared against the Key Performance Indicators(KPI) and Quality Assurance Program (National Indicator Approach) Standards (QAP-NIA). **Methodology:** This study involved a descriptive retrospective design and was conducted through the retrieval of data from the Health Management Information System. **Results:** The coverage of primary and secondary schoolchildren had increased by 21.7% and 78.9% respectively. The percentage of primary schoolchildren maintaining 'orally fit status' showed an increase of 6.9% for the period 2003 to 2006. However in 2007, it declined by 14.7% as compared to the achievement in 2006. The percentage of secondary school children maintaining 'orally fit status' showed a similar trend. Percentages of CFM among 6, 12 and 16 year-olds within the 5-year period were above the national standards set. **Conclusion:** The coverage of primary and secondary schoolchildren in the 5 years under assessment for this study had increased; with CFM achieving the KPI standard and the achievement of 'orally fit status' within the QAP (NIA) standard. The Oral Health Division in Selangor will continue to strive towards further excellence beyond these achievements.

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A SCHOOL-BASED FLUORIDE MOUTH RINSING PROGRAMME IN SARAWAK: A 3-YEAR NON-RANDOMIZED FIELD STUDY

Chen CJA, Ling KS, Rashidah E, Chia JC, Eddy A, Yaw SL

Objective: This study was undertaken to assess the impact of fluoride mouth rinsing on caries experience in a cohort of schoolchildren three years after implementation. **Methodology:** A total of 270 children aged eight to nine years from four schools in Sarawak were selected. Baseline data was collected to ensure that the selected school did not differ significantly. Children from two schools rinsed with 0.2% sodium fluoride under supervision, while those from the other schools did not. **Results:** After three years, 225 schoolchildren remained in the study. At the end of the study, there was a caries reduction of 47.6% in the test group. The mean DMFT for the test group was 2.11, while the mean DMFT for the control group was 4.03. The mean DMFS for the test group was 2.96, while the mean DMFS for the control group was 6.73. More children in the test group (25.7%) remained caries free compared to the control group (12.0%). **Conclusion:** The findings showed that a school-based weekly 0.2% sodium fluoride mouth rinsing programme is an effective caries preventive measure and should be implemented in more schools located in areas without fluoridated water supply.

Paper presented at 6th Conference of Pediatric Dentistry Association of Asia 2008, 10-12 July 2008 at Berjaya Times Square Hotel and Convention Kuala Lumpur, Malaysia

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RESEARCH
IN
EPIDEMIOLOGY

TOOTH WEAR: PREVALENCE AND ASSOCIATED FACTORS AMONG 16-YEAR-OLD SCHOOL CHILDREN IN KOTA BHARU, KELANTAN

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Objectives: The objectives of this study were to determine the prevalence and mean scores of raw tooth wear (RTW) and pathological tooth wear (PTW), to compare knowledge, attitude and practice (KAP) between cases and controls and to determine associated factors of PTW among 16-year-old school children in Kota Bharu, Kelantan. **Methodology:** This study was designed as a two-stage study. The first stage was a cross-sectional study involving 688 children who were selected using systematic random sampling. All children were examined intra-orally. The Smith and Knight Tooth Wear Index was used for charting tooth wear and the WHO criteria for dental caries. Data were analyzed using a simplified Microsoft Excel Programme based on the score to quantify PTW. The second stage adopted a case-control design, involving 116 cases and 460 controls that were re-sampled from the first stage using simple random sampling. Validated self-administered questionnaire provided the socio-demographic profile of the family, general information, KAP and associated variables for tooth wear. Saliva analysis utilized the standard method recommended by 'GC' Asia Dental. **Results:** The prevalence of RTW and PTW was 100% and 20.1% respectively. There was no significant difference in KAP between cases and controls. Significant variables associated with PTW were sex, monthly household income, '100 Plus' drink, duration of intake of orange juices, hydration rate, pH and viscosity of saliva, caries experience and swimming. **Conclusion:** All children had some degree of wear with a high proportion already affected by PTW. The level of awareness regarding tooth wear among some children was still low. Oral health promotion should emphasize on this information. The erosive potential of some foods and drinks require further investigation.

Keywords: tooth wear, prevalence and associated factors

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THE ROLE OF THE PRIMARY DENTAL TEAM IN THE PREVENTION OF TRAUMATIC DENTAL INJURY

Norashikin MY

Introduction: Traumatic dental injury (TDI) is recognized to be developing as a dental public health problem. The prevalence is estimated to range from 4% to 33% in 12 year-old children. It has an impact on the quality of life of children. Several authors have suggested that dental professionals may contribute significantly to the prevention of TDI. However, there is currently no data available to determine whether this role is fulfilled. **Objectives:** The aim of this study was to assess the provision of information on the prevention of TDI by dentists and dental nurses of the primary dental team within and outside the dental surgery; and to assess their attitude and barrier towards the prevention of TDI. **Methodology:** A cross-sectional postal survey of all dentists and dental nurses in the government dental services in Selangor was conducted using a self-administered questionnaire. Data was collected on the provision of information on the prevention of TDI within the dental surgery, the provision of information on the prevention of TDI outside the dental surgery, the attitudes of dentists and dental nurses towards the prevention of TDI and the barriers towards the prevention of TDI amongst dentists and dental nurses. **Results:** A 80% response rate was achieved. Of these, 40% of respondents reported providing information on the prevention of TDI within the dental surgery. Less than 10% provided information on the prevention of TDI outside the surgery often or routinely, with the exception of the provision of dental health education on the prevention of TDI to schoolchildren (36%). Eighty three percent of respondents believed that TDI are preventable whilst 85% of respondents perceived that dentists and dental nurses should be involved in lobbying or campaigning on local safety issues to prevent TDI. Ninety three percent of respondents believed that prevention of TDI is the responsibility of the individuals or parents whereas 61% of respondents perceived that national and regional agencies are better placed than local ones to educate the public about prevention of TDI. Fifty percent of respondents believed that discussion on the prevention of TDI are too time consuming whilst 64% of respondents believed that they lacked the knowledge on the subject. **Conclusion:** This study has shown that prevention of TDI is a low priority area within the primary dental care. Greater awareness on the importance of the prevention of TDI and the provision of relevant knowledge and skills on the subject of prevention of TDI amongst the dentist and dental nurses would help in the prevention of TDI.

Keywords: primary dental team, prevention, traumatic dental injury

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AN INVESTIGATION INTO THE CAUSES OF TRAUMA TO ANTERIOR TEETH IN SCHOOL CHILDREN

T.Kanagarajah AR

Introduction: Dental trauma in many countries can be considered a greater threat than caries to the health and preservation of anterior teeth. **Objective:** The aim of this study was to identify the causes of trauma to anterior teeth and the age group most vulnerable to trauma. **Methodology:** This study utilized a descriptive cross-sectional design. Data was collected from the sample of school children treated in the school incremental care programme and also schoolchildren who presented at the main dental clinic. Data analysis was carried out using Epi Info. **Results:** A total of 100 school children were examined and of these, 41 children had trauma to the anterior teeth (41.0%)**.** Males were more commonly affected than females. The prevalence of trauma was higher amongst the males in the 13-17 year old age group. The main causes of the trauma were falls within the school environment (58.5%), accidents within and outside schools environment (21.9%), contact sports injury (4.8%) and other injuries arising from fights/other forms of abuse (14.6%). **Conclusion and Recommendations:** The findings of the study calls for public health concern with the increasing incidence of trauma to anterior teeth. Sports injuries can be preventable using mouth guards and helmets. The use of protective gear should be implemented in every school where contact sports are common. Information about first aid treatment to the trauma victim appears to be essential and so informative campaigns should be aimed at educating the public about appropriate treatment. It is also recommended that brochures and pamphlets be distributed and displayed at appropriate places like schools and sports clubs. The social impact of trauma to anterior teeth has to be further investigated as it affects the quality of life.

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IMPACT ON THE WELL-BEING OF PARENTS WITH CLEFT LIP AND PALATE CHILDREN ATTENDING KOTA BHARU COMBINED CLINIC

Rapeah MY, Abdul Rashid I, Halim S, Ayub MS

Objectives: The objective of this study was to determine and compare the impact on the well-being of parents with cleft lip and palate (CLP) children. Factors associated with the impact on the well-being of fathers and mothers with CLP children were also explored. **Methodology:** A cross-sectional study was conducted from January 2004 to July 2004 at the Combined Cleft and Craniofacial Deformity Clinic (CCCDC), Jalan Mahmood, Kota Bahru, Kelantan. A set of validated self-administrated questionnaire which was to be answered at the clinic or returned by mail was distributed to 223 parents. The questionnaire focused on six domains of impact on the well-being which included disruption of social interaction, financial burden and disturbance to daily activities, effect on physical health, effect on mental health and disturbance on recreational activities. Factors that influenced the impact on the well-being of 106 fathers and 117 mothers were also determined separately. Ninety-seven married couples were recruited in the study to determine and compare the impact on the well-being of parents with CLP children. **Results:** The impact percent score, showed mothers significantly have higher percent score on disturbance to daily activities (p=0.004), effect on physical health (p=0.021), and disturbance on recreational activities (p=0.011) compared to the fathers. The findings showed impacts among mothers in four out of six domains of well-being and among fathers with CLP children, there were impacts in only two aspects of well-being. The factors that influenced the impact on the well-being of fathers were age and marital status. The factors that influenced the mothers were number of dependents in the family and the presence of disease(s). Among married couples, mothers of a cleft lip and palate child have a higher score with a significant difference in the domains of disruption of social interaction, effect on physical health, and disturbance of recreational activities. **Conclusion:** Both fathers and mothers were found to have different factors that influenced their well-being in this study.

Keywords: adolescent, cleft lip and palate, impacts, well-being

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PSYCHOLOGICAL IMPACTS OF DENTAL FLUOROSIS AMONG MALAYSIAN SCHOOL CHILDREN

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Objectives: The objectives were to assess the prevalence, severity and; the psychological and social impacts of fluorosis among schoolchildren and their parents in the Kuala Pilah area, Negeri Sembilan, Malaysia. **Methodology :** A convenience sample of 431 students aged 16-17 years old from 3 secondary schools in Kuala Pilah were selected. They were assessed for presence of dental fluorosis using Dean's Index and impacts of dental fluorosis. Questionnaires were administered to all the students with dental fluorosis and selected matched students with no fluorosis. They constituted a control group for this case control study. Questionnaires were also sent to the parents of students with dental fluorosis and the control group. **Results:** The prevalence of dental fluorosis was 27.8%; 82% of the fluorosis cases were questionable to mild and 18% had moderate to severe fluorosis. Psychological impacts were present in 16.1% of students with dental fluorosis and 8.5% of students with no fluorosis. Among parents of children with fluorosis, 12.8% reported that their child had an impact. More girls with fluorosis (35.7%) had psychological impacts as compared to boys (25.0%). In the 16.1% of fluorosis cases who had psychological impacts; difficulty smiling and showing teeth affected 35.7% of girls and 25% of boys. The percentage of students with dental fluorosis who had psychological impacts on carrying out school work was 2.7%, and 3.6% had impacts related to going out with friends. **Conclusion:** There was considerable psychological impact on smiling and showing teeth among Malaysian teenagers with dental fluorosis. Some of their parents were concerned about the fluorosis. However, the impacts were mild and do not have a major impact on students' lives. Dental fluorosis is not aesthetically displeasing to most subjects but does have psychological and social impacts on a small percentage with fluorosis.

Keywords: fluorosis, prevalence, children, psychosocial, impacts, dissatisfaction , tooth colour

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RESEARCH
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HEALTH AND SAFETY

THE RELATIONSHIP BETWEEN GENDER, AGE, JOB RANK, MARITAL STATUS AND LEVEL OF MENTAL HEALTH AMONGST DENTISTS IN THE PUBLIC SECTOR

Mason L

Objective: The aim of this study was to determine whether gender, age, job rank and marital status were associated with the level of mental health of dentists in the public sector in Malaysia. **Methodology:** A self-administered questionnaire survey was conducted on all dentists with at least one year working experience in the public sector in the country. In all, 682 questionnaire forms from a total of 864 forms distributed were returned (81% response rate). The study explored eight mental health domains namely; vitality, somatic experience, behavior, cognitive symptoms, emotions, sense of coherence, interpersonal relationship and sense of accomplishment experienced by respondents. The responses to these areas were measured by structured statements on a five-point Likert Scale. **Results:** Although none reported extreme negative conditions, 18.9% and 75.9% respondents were reported to have poor and moderate level of mental health respectively. Only 5.2% reported excellent mental health status. Gender, age and job rank were found to be significantly associated with the level of mental health at $p<0.05$ but marital status was not ($p<0.05$). Increasing age and higher job ranks were significantly related to better mental health experience ($p<0.05$) regardless of location of practice and types of practice. The most important finding of the study was that most dentists (95%) experience mental stress and that about one in every five dentists (18.9%) had serious mental stress. **Conclusion:** Persistent mental stress is harmful to the dentists' overall mental health and may raise issues of work quality and productivity. Work policies, training opportunities and supportive environment should be looked into to help dentists cope with work and life more productively. The survey concluded that dentists are prone to mental stress. The selected variables studied contribute significantly to a better understanding of how the level of dentists' mental health was affected by them.

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LEVELS OF MERCURY VAPOUR IN WORKING AREAS OF DENTAL NURSING STUDENTS IN CHILDREN'S DENTAL CENTRE AND DENTAL TRAINING COLLEGE MALAYSIA, PENANG

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Introduction: A small amount of mercury is released from dental amalgam during placement and removal of dental amalgam restorations and also during chewing and tooth brushing. However, the exposure of mercury through dental amalgam is minimal compared to exposure through diet, industrial and natural sources. Studies have shown that the presence of amalgam fillings do not appear to affect the general health of patients. **Objectives:** The aim of this study was to assess the existence and levels of mercury vapour in the working areas of Dental Nurse Students during their two years training at the Children's Dental Centre and Dental Training College Malaysia and also to identify factors that contribute to the high level of mercury vapour. **Methodology:** Three working areas with different characteristics and settings were selected. A Mercury Vapour Indicator was used to record readings of mercury vapour level and specially designed formats were used to gather data for this study. **Results:** Exposure to mercury vapour at the Children's Dental Centre and Dental Training College Malaysia is still below the recommended safety limit of 50 µg g/m^3. In the dental surgeries, where the second year students carried out their clinical training of treating patients, the level of mercury vapour correlated with the number of amalgam fillings done. The declining number of amalgam fillings done was due to the reduction of tooth decay and the improved qualities of new filling materials. The highest level of mercury vapour was found in the preliminary Dental Operative Technique (TPO) room, where half of the intake of first year students (63 students), performed simultaneously procedures of amalgam restorations such as removal of amalgam, placement of new amalgam and polishing of amalgam fillings. The highest averaged mercury vapour level was found to be 23 µg/m^3 during the removal of amalgam fillings. The highest mercury vapour levels at specific sites within the surgeries that were above the safety limit were recorded at areas beside the amalgamator during the process of breaking the pre-capsulated alloy and above the storage containers for waste amalgam upon opening of the lid. The highest averaged mercury vapour level during breaking of pre-capsulated alloy capsules was found to be 350 µg/m^3 and during the opening of the waste amalgam container was 83 µg/m^3. **Conclusion:** High mercury vapour levels appear to be due to certain amalgam procedures. Therefore, increased mercury hygiene and regular control of working atmosphere especially in the TPO should be implemented to minimize exposure to mercury vapour.

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RESEARCH
IN
BEHAVIOURIAL ASPECT
IN RELATION
TO ORAL HEALTH

DRINKING AND SNACKING PATTERNS AMONGST PRESCHOOL CHILDREN IN GOVERNMENT KINDERGARTENS IN JOHOR BAHRU DISTRICT

Sabarina O

Introduction: The prevalence of dental caries in 5-year-old children was 76.2% (Malaysia) and 61.0% (Johore) in 2005 (NOHPS, 2005).In view of the relatively high caries prevalence at both levels, it was deemed timely to evaluate the drinking and snacking patterns amongst preschool children and review current food policies/guidelines for government kindergartens. **Objective:** The objective of this study was to evaluate the baseline patterns of drinks and snacks consumption amongst preschool children of government kindergartens in Johor Bahru. **Methodology:** This cross-sectional study involved a convenient sample of 52 government kindergartens with a total enrolment of 1,767 children in two counties *(mukim)* of Johor Bahru district; Masai and Pasir Gudang. Self-administered questionnaires were distributed to all the kindergartens sampled. Descriptive statistical analysis was performed using the Statistical Package for Social Science (SPSS) software version 14.0. The data obtained was used to determine : i) the types of food and beverages (F&B) given to the preschool children and ii) the existing food policies/guidelines practiced by the kindergartens involved. **Results:** It was observed that 94% of the kindergartens provided *MILO* (chocolate malt) as their main beverage. Favourite snacks supplied were biscuits (82.7%), followed by bread and butter (53.3%). Sweets and chocolates (78.1 %), birthday cakes (74.3%), and *Briyani* rice (51.4%) were the main food items provided by parents of pupils on special occasions. There was no significant difference in snacking patterns amongst subjects in kindergartens which had healthy F & B policies/guidelines as opposed to those that did not. Most kindergartens (87%) did not impose restrictions on types of F & B brought from home. **Conclusion:** The baseline patterns of drinks and snacks consumption amongst preschool children of 52 government kindergartens in Johor Bahru warranted concerns. Most F & B consumed were high in sugar, fat and salt contents; irrespective of being provided by parents or kindergarten authorities. There were also ambiguities in food policies/guidelines prepared by the kindergartens.

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MOTHERS' KNOWLEDGE OF FLOURIDE TOOTHPASTE USAGE BY THEIR PRESCHOOL CHILDREN

Tay HL, Nasruddin J

Objectives: The objective of this study was to investigate the knowledge of mothers with regards to the benefits and risks of fluoride toothpaste usage among preschool children and to assess the level of parental supervision during toothbrushing. Additionally, the toothpaste purchasing behavior of mothers in relation to brand, price, flavor, fluoride content and the influence of advertisement were investigated as well. **Methodology:** A cross-sectional study of a representative random sample of 373 mothers of 5-6 year old preschool children was conducted through self-administered questionnaires. **Results:** The response rate was 90.3% (337). The majority (61.7%) of the mothers reported that the amount of toothpaste their children used was half-length. Most mothers (70.6%) claimed they usually apply toothpaste for their child. About one-half (50.4%) reported the children applied the toothpaste themselves. Only 41.2% of the respondents supervised their children every time during tooth brushing. The mean age at which the child started brushing and using toothpaste was about 34 months (S.D. 14.9) and 37 months (S.D. 14.8) respectively. Almost all (95.8%) reported that their children rinsed their mouth after tooth brushing. The mothers' choice of toothpaste for their child was influence by brand (91.4%), flavor (91.4%) and fluoride content (84.6%) with price being the least of the factors to be considered. The majority of the respondents (82.7%) had average to good overall knowledge scores. There was a significant association (p=0.034) between the level of education of the mothers and their level of knowledge on fluoride toothpaste usage. **Conclusion:** Future oral health messages for preschool children and mothers in Perlis should target areas found lacking in terms of knowledge and practices with regards to fluoride toothpaste usage. This includes regular supervision of preschool children during tooth brushing by parents and using only a small amount of toothpaste for young children.

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PSYCHOLOGICAL IMPACTS ON CHILDREN FOLLOWING DENTAL EXTRACTION UNDER GENERAL ANAESTHESIA AND LOCAL ANAESTHESIA

Aminah M

Objectives: The objectives of this study were to investigate whether there was any difference in psychological impact in children who had dental extractions under general anaesthesia (GA) and local anaesthesia (LA) and; to investigate factors that might influence the impact. **Methodology:** Children aged 7-17 years old, who attended the Royal London Dental Institute for extractions were interviewed using a structural questionnaire before and approximately one week after their extraction. Their levels of anxiety were assessed using the Modified Dental Anxiety Scale (MDAS) and the psychological impact following extractions were assessed using the Impact of Event Scale (IES). The socio-demographic background, medical and dental history of these children were also recorded. **Results:** The final sample consisted of 56 children; 25 and 31 children were in the GA and the LA groups respectively. Most of the variables in both groups were matched except for age ($p<0.01$), dental attendance ($p<0.05$), number of teeth extracted ($p<0.001$), reason for extraction ($p<0.001$) and usage of analgesics before and after extraction ($p<0.01$ and $p<0.05$ respectively). Comparing between the GA and LA groups, no significant differences were found in MDAS scores and IES scores. **Conclusion:** There was no significant difference in the psychological impact scores between children in the GA and LA group. Ethnicity was the only factor that influenced the psychological impact in both groups.

Keywords: psychological impacts, GA, LA, dental extraction

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DO ORAL HEALTH PERSONNEL FEEL THEY SHOULD HAVE REGULAR DENTAL CHECK-UPS?

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Objective: The aim of this study was to examine the perception of oral health personnel towards annual dental check-ups. **Methodology**: A total of 793 oral health personnel in the Oral Health Division, Sarawak Health Department participated in the study. A self-administered structured questionnaire was used to collect the required information. **Results:** About half (55.0%) of the respondents had been for a dental check-up within the last 12 months. Females were more likely to have had a dental check-up within the last one year compared to males ($p<0.05$). The main reasons for the last dental visit were; "I felt that it was time for a dental check-up" (26.0%), "I was asked to go for a dental check-up (22.2%) and "I needed a filling" (22.1%). The main reasons for not having a dental check-up within the last two years were; "No problems with teeth and gums" (87.9%), "Dental problem not serious enough" (58.0%), "No time to go for dental check-up" (34.7%), "Prefer to check my own teeth" (22.6%), "Fear of dental treatment" (12.9%) and "Difficult to get an appointment" (12.1%). Most of the respondents (72.1%) were willing to attend an annual dental check-up. **Conclusion:** Females were more willing to attend dental check-ups compared to males ($p<0.05$). Oral health personnel who indicated that they would attend annual dental check-ups were more likely to have done so within the last one year ($p<0.01$). Annual dental check-ups should be scheduled for oral health personnel as those who have been for annual dental check-ups would be in a better position to advise the public to do likewise.

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RESEARCH
IN
CLIENT SATISFACTION

SATISFACTION AND DENTURE USAGE AMONG DENTURE WEARERS

Abrizah A

Objectives: The objective of this study was to explore full denture usage and satisfaction was conducted among patients of age 60 and above in the District of Rembau, Negeri Sembilan. **Methodology:** Subjects were interviewed via telephone using questionnaires which were developed and pretested by the researcher. **Results:** The study revealed that 56% of respondents reported using dentures that were issued in the year 2004. Dissatisfaction was reported among all the 14 patients who did not use dentures and 2 who were still using the dentures made by dental technicians in 3 dental clinics in the District of Rembau. The factors cited for dissatisfaction were related to function, aesthetics, speech and others with function being the highest dissatisfaction factor. Analysis using Fisher Exact Test to investigate the difference between dissatisfaction and denture usage revealed that there was a significant difference between the two variables (p = 0.001; 95% C.I). A significant difference also exist between dissatisfaction and factors such as function, aesthetics and speech (p = 0.000; 95% C.I). it was also found that 50% of respondents who experienced problems with their dentures also had difficulty in going back to the dental clinics to seek corrective actions. Among factors cited were problems with transportation, time and location of the dental clinic on the first floor. **Conclusion:** The key to successful denture construction lies in good communication with patients which encompasses understanding patients' needs, managing expectations and overseeing challenges whilst maximizing available resources. Patients should be encouraged to come for follow-up treatment after issue of dentures so that problems faced could be resolved. In addition to this, continuous update and training on the use of new technologies will contribute towards ensuring dentures produced are of high quality and meet patients' expectations.

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A COMPARISON OF PATIENT SATISFACTION BETWEEN THE USE OF ACRYLIC PARTIAL DENTURES AND CHROME COBALT PARTIAL DENTURES

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Objectives: The aim of this study was to compare patient satisfaction between the use of acrylic partial dentures and chrome cobalt partial dentures; and to assess the effect of the dentures on gingivitis and plaque score at denture-bearing areas. **Methodology:** This prospective study involved a convenient sample of 150 patients from three government dental clinics in Seremban and Tampin. **Results:** A response rate of 80.6% was obtained. Of the 121 patients who responded, 30.6% were males and 69.4% were females. All patients who had been issued with chrome cobalt dentures were satisfied with the appearance of their dentures and speech. For patients using acrylic dentures, the corresponding percentages were 90.6% and 82.8% respectively. Of those using chrome cobalt dentures, 89.5% were satisfied with their mastication as compared to 85.9% of patients using acrylic denture. More of patients (76.6%) using chrome cobalt dentures were satisfied with the fit and comfort of their dentures as compared to patients using acrylic dentures where only 51.6% were satisfied with the fit of their dentures and 54.7% were comfortable with their dentures. Cheek-biting was prevalent in 76.6% of patients using acrylic dentures as compared to the prevalence of 79.7% for patients using chrome cobalt dentures. More patients issued with acrylic dentures complained of unstable dentures and overextended flange compared to patients issued with chrome cobalt dentures. Significantly better plaque scores and gingivitis scores were found amongst patients with chrome cobalt dentures ($p<0.05$). **Conclusion:** Overall, in consideration of the fit and comfort of dentures, aesthetics, speech function, patients with chrome cobalt dentures were more satisfied compared to patients using acrylic dentures.

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GOVERNMENT DENTISTS' PERCEPTION TOWARDS DENTISTRY AS A PROFESSION

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Objective: The objective of this study was to describe the government dentists' perception towards dentistry as a choice of career. **Methodology:** The study was a cross-sectional survey using self-administered questionnaire. A total of 480 dentists participated in this study. The respondents came from various states in Malaysia except Kelantan, Sabah and Sarawak. In this study, dentists' perception including motives for choosing dentistry, job satisfaction, barriers to achieve work target and promotion opportunity were investigated. **Results:** Majority of the dentist who took up dentistry perceived that the dental profession was a prestigious (85.4%) career and could bring in attractive financial rewards (85.1%). Among the barriers for not achieving their work targets were high work burden (63.7%), non-conducive working environment (36.8%) and stress (32.6%) Overall, delivering the service to patients contributed to job satisfaction among dentists. Slightly more than half (59.0%) of the dentists in this study were not satisfied with their income. Additional qualifications (89.1%), seniority in the service (83.7%) and good relationship (80.1%) were among the factors perceived by dentists to contribute towards opportunities for promotion. **Conclusion:** Findings of this study can be used as a motivational tool and marketing strategy to attract more students to take up dentistry. In addition, it is suggested that the government review the remuneration system, incentives for dentists working in rural areas, critical allowance and opportunities for postgraduate study to attract more dentists to stay longer in the government service.

Keywords: government dentists, perception, dentistry, profession

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RESEARCH
IN
ORAL SURGERY, ORAL PATHOLOGY
AND
ORAL MEDICINE

CASE REPORTS OF EWING'S SARCOMA OF THE MANDIBLE

Wan Mahadzir WM, Tan HL

Introduction: Ewing's Sarcoma is an uncommon bony malignancy in the mandible. However, it is the most common primary bone malignancy in childhood and adolescence. **Objective:** The aim of this case report was to review our experience with Ewing's Sarcoma of the mandible. **Methodology:** Between the year 2000 and 2006, 4 cases were identified at the Oral Surgery Department, Kuala Lumpur Hospital. The demographic, clinical, radiological, histopathological and treatment reports were reviewed retrospectively. **Results:** The age of presentation ranged from 17 months of age to 21 year-old. There were 3 cases of female and 1 male. The common presentation was an enlarging mass in the mandible. Of the 4 patients, 3 received combination treatment of chemotherapy and surgery; and 1 had surgical excision only. Immediate mandibular reconstruction was performed on 2 patients. Three of the patients survived without any metastases and one died of suspected metastases disease. **Conclusion:** Ewing's Sarcoma of the mandible is often overlooked initially during differential diagnosis due to its unusual site, common clinical presentation of swelling, radiolucency of the lesion and the histology of small blue round cells. Good prognosis can be achieved with early diagnosis, no metastases of tumor and a combination of chemotherapeutic regimens and adequate surgical excisions.

Keywords: Ewing's Sarcoma, mandible, malignancy

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TREATMENT OF CLEFT LIP AND CLEFT PALATE AT THE ORAL SURGERY UNIT, TAIPING HOSPITAL FOR THE PERIOD 1985-1999

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This presentation serves to present information regarding the cleft lip and palate cases seen from 1985-1999 at the Oral Surgery Unit in Taiping Hospital. The patients were from all over the state of Perak. Most of them were indigenous Malays but other races also presented, in particular the *Orang Asli*. Although a higher occurrence of cleft lip and palate were found among the Malays, it may not reflect the actual prevalence as this ethnic group constitute the largest ethnic group in Malaysia. There were more females than males. This could be due to the fact that aesthetics is regarded as more important to the female gender to procure a life partner. All the cases were operated before the age of 5 with hardly any complications. Cleft lip and cleft palate showed the highest occurrence. The results were acceptable to the parents and babies returned home with minimal scarring. Management of cleft patients has improved owing to increasing knowledge of craniofacial growth and further development of surgical and orthodontic therapy. Treatment of cleft lip and palate is generally aimed at achieving good aesthetic and functional long-terms results.

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SOFT TISSUE RECONSTRUCTION OF RIDGE DEFORMITIES: MODIFIED ONLAY-INTERPOSITIONAL CONNECTIVE TISSUE GRAFT COMBINED WITH LABIALLY POSITIONED FLAP AND TEMPORARY REMOVABLE PARTIAL DENTURES - A CASE SERIES

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Objectives: The purpose of this paper is to describe the new modified onlay-interpositional connective tissue graft (CTG) technique combined with labially positioned flap, to demonstrate whether the removable partial dentures (RPD) is able to support the healing stage and to evaluate the post surgery clinical results. **Methodology**: Four stabilized chronic and generalised aggresive periodontitis patients from the Periodontal Clinic with severe aesthetical prosthesis problem and ridge deformities of Siebert class III morphology on the anterior maxilla were selected. A removable partial denture (RPD) was specially designed prior to surgery. The new modified technique is described in detail. The ridge-works were constructed at six to eight weeks post surgery. The clinical assessment in terms of degree of the ridge deformities, texture, colour, scar tissue, papilla classification and gingival line were recorded at baseline, six weeks and six months. **Results:** All patients showed a similar pattern of uncomplicated healing, clinically using the RPD. At six weeks post surgery, all bucco-lingual and apico-coronal ridge deformities were corrected. At six months, the ridge deformities corrected were excellently maintained, inter-dental papilla reconstruction was appreciable, aesthetic quality of texture and color of tissues without scarring were noted. The gingival line was symmetrical. **Conclusion**: The specially designed RPD managed to assist the healing of the new modified technique of CTG inserted in the labially positioned flap. Clinical results showed that the ridge deformities have been corrected with improvement in papilla level and gingival line.

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CONDYLAR FRACTURES IN KOTA BHARU, KELANTAN: PATTERNS AND TREATMENT OUTCOMES

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Objectives: The objective of this study was to evaluate the pattern of condylar fractures of the mandible, the management of condylar fractures and the factors that affected the treatment outcome of condylar fractures in Kota Bharu, Kelantan. **Methodology:** This is a restrospective cross-sectional study of 39 patient records with condylar fracture of the mandible at the Raja Perempuan Zainab II Hospital in Kelantan from year 2004 to 2006. Data analysis was done on the age group, gender and aetiology of the fracture. Using the patients' Orthopantomography, the characteristics of the condylar fracture were analysed in terms of lateral displacements, location, types of fracture and whether there were any other associated fracture(s). Treatment outcome was evaluated based on the degree of mouth opening, the status of occlusion and the degree of jaw deviation six weeks after reduction. **Results:** In this study, it was found that more males (77%) were involved than females. In addition to that, 67% of the patients were males between 11-20 year old. The identified causes of the condylar fractures were motor vehicle accidents (87%), falls (10%) and other reasons (3%). Analysis on the pattern of condylar fractures showed that 85% of patients had unilateral fracture, 42% had fracture at sub-condylar level and 34% had fracture at the condylar neck. In addition to that, 85% of the patients had displacement/deviation/dislocation and 15% showed no displacement at all. A higher proportion of the fractures were managed by closed reduction with intermaxillary fixation (72%) than by conservative treatment (28%). Mandibular dysfunctions were observed more frequently in females and patients with unilateral condylar fracture ($p<0.05$). The age, location, type of fracture, presence of associated fracture(s) and treatment method did not affect the treatment outcome. **Conclusion:** Condylar fractures commonly involved younger males and the most common cause was due to motor vehicle accidents. Most fractures were unilateral, displaced and occurred at sub-condylar level. The preferred management was closed reduction with inter-maxillary fixation. At 6 weeks post-treatment, there was no significant difference between the percentages of patients with good mandibular function and patients with mandibular dysfunctions.

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PREMAXILLARY RETRACTOR IN BILATERAL CLEFT LIP AND PALATE: AN INNOVATIVE TECHNIQUE

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Objective: Repositioning of prominent premaxilla in bilateral cleft lip and palate (BCLP) is a controversial issue because no other interventions have shown promising results. The objective of this study was to evaluate the use of a pre-surgical appliance as an innovative technique to retract the prominent premaxilla in BCLP prior to lip repair. **Methodology:** A total of 88 BCLP babies aged between 2 and 5 months with prominent premaxilla were surgically fitted with a premaxilla retractor appliance under general anaesthesia. The appliance consisted of an acrylic palatal plate secured with titanium screws and an orthodontic power chain attached to a k-wire hook inserted at the vomer of the premaxilla. Elastic retraction was carried out for 2 weeks until the premaxilla was retracted sufficiently which was manifested as being in good arch alignment; to allow repair of the bilateral cleft lip without tension. **Results:** Apart from two cases of dislodged plate, the rest of the babies were successfully treated. Other benefits include less hospitalization and general anaesthesia, better feeding, less wound breakdown and a better esthetic outcome. **Conclusion:** This appliance has proven to be effective in retracting prominent premaxilla in BCLP patients prior to lip repair.

Keywords: bilateral cleft lip and palate , prominent premaxilla, premaxillary retractor.

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ORAL LANGERHANS CELL HISTIOCYTOSIS IN MALAYSIAN CHILDREN: A 40-YEAR EXPERIENCE

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Objective: The objective of this study was to determine the clinico-pathological features of Langerhans cell histiocytosis occurring in the oral cavity in children which was diagnosed histologically in the main oral histopathology laboratory in Malaysia. **Methodology:** A retrospective study was carried out on cases of Langerhans cell histiocytosis and histiocytosis X diagnosed in the Stomatology Unit, Institute for Medical Research, Kuala Lumpur from 1967 to 2007 among pediatric patients (0-16 years old). All information regarding age, gender, race, clinical presentation, radiographic findings and diagnoses were retrieved from the computerized data. **Results:** Of the 16 cases, 7 (43.8%) were females and 9 (56.2%) were males. The age ranged from 1 to 7 years. There were 9 Malays, 4 Chinese, 2 Indians and 1 of other ethnicity. As many as 12 cases (75.0%) presented as gingival swellings; and 6 of these cases were accompanied by mobility of the teeth. A total of 9 cases involved the mandible, 2 involved the maxilla and involvement of both the maxilla and mandible were seen in 2 other cases. The radiographic findings were mentioned only in 9 cases with presence of bony erosion or destruction of the jaw bones. Punched-out radiolucencies of the skull was seen in 3 cases. The patients also had other systemic signs and symptoms; skin lesions (n=5), hepatosplenomegaly (n=2), prolonged fever (n=2), diabetes insipidus (n=1) and exopthalmus (n=1). There were 2 cases with known systemic Langerhans cell histiocytosis. **Conclusion:** Although Langerhans cell histiocytosis is rare, it can also present in the oral cavity. The histopathologic features of Langerhans cell histiocytosis are easily recognized; and with the development of immunostaining, the use of CDla helps in confirming the diagnosis.

Keywords: Langerhans cell histiocytosis, children, oral cavity

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BISPHOSPHONATES AND OSTEONECROSIS OF THE JAW: A HIGHLIGHT

Kanagaratnam SS, Jeya Raman JS

Reports of bisphosphonate-induced osteonecrosis of jaw (BONJ) are increasing lately and its development is associated with oral health. Exact pathogenesis of BONJ remains ill-defined. A complex interplay of multiple risk factors, especially dental surgery, altered bone metabolism secondary to bisphosphonate (BP) therapy and the duration of exposure of an individual to BP are associated with the pathological presentation. The clinical signs and symptoms may vary for each patient. Adherence to recommended dental treatment may reduce risk of development of BONJ. The aim of treatment of BONJ currently is to control the pathology and discontinuation of BP therapy at the onset of BONJ is debatable.

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ANTIMICROBIAL EFFICACY OF A DECONTAMINATION PROTOCOL IN IMMATURE NON-VITAL INCISOR TEETH

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Objectives: To determine the efficacy of sodium hypochlorite and calcium hydroxide for decontaminating immature roots of non-vital incisor teeth and to investigate the microbiological data before and after decontamination. **Methodology:** Six patients undergoing dental treatment at the Eastman Dental Hospital were recruited. The decontamination procedure was used both before and after access cavity preparation in an immature non – vital central incisor tooth. This was repeated before further endodontic treatment 2 weeks later. A sample was taken from the root canal using a sterile paper point for microbiological analysis following decontamination on both occasions. The paper point was immediately inoculated into reduced transport media and processed in the microbiology laboratory. All bacteria were identified initially by gram staining and a catalase test. Further identification was carried out by sequencing the 16S rRNA gene. **Results:** Only the total anaerobic count was significantly reduced following the second visit decontamination compared with the first visit (p=0.03). A variety of bacterial species were identified after the second visit. These included *streptococci, staphylococci* and *fusobacterium*. **Conclusion:** The results of this pilot study indicated that there was a significant reduction in the total anaerobic bacterial count following standard decontamination protocol using sodium hypochlorite and calcium hydroxide.

Keywords: antimicrobial, decontamination, immature non-vital incisor teeth

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EXPRESSION OF p53 AND pRb AND DETECTION OF HPV TYPE 16 AND 18 IN ORAL POTENTIALLY MALIGNANT AND MALIGNANT LESIONS

Abdul Rahim A, Rosnah MZ

Introduction: Two of the suppressor gene namely p53 and pRb are frequently mutated with altered expression of their protein products in many cancers including oral cancer. **Objectives:** The aim of the present study was to describe the expression of p53 and pRb tumour suppressor gene proteins in potential malignant and malignant lesions in relation to risk habits and the possible implication of high risk HPV in the progression of lesions toward malignancy. **Methodology:** The study samples included 20 cases each of oral squamous cell carcinoma, epithelial dysplasia and epithelial hyperplasia. Immuno-histochemistry was used to localize the p53, pRb and HPV type 16 and 18 immuno-reactivity. In-situ hybridization method was used to further detect HPV 16 and 18. **Results:** This study showed an increasing pattern of p53 over-expression and abnormal expression of pRb in the progression of lesions from epithelial hyperplasia/keratosis to oral Squamous Cell Carcinoma. **Conclusion:** The findings of this study suggested that inactivation of p53 and pRb are important molecular events in oral cancer transformation processes. The absence of HPV type 16 and 18 in the samples may suggest that the role of HPV infections in oral carcinogenesis was probably not common in the sample studied. Further studies with larger samples size of patients and more sensitive detection methods should be used to validate the current findings.

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A STUDY ON FOOD INTAKE AMONG SELECTED INDIAN POPULATION IN MALAYSIA WITH/WITHOUT POTENTIALLY MALIGNANT LESION

Rohana S, Zainal Ariff AR, Rosnah Z

Objective: The aim of the study was to investigate the food intake in relation to potentially malignant lesion and non-potentially malignant lesion. **Methodology:** This study was conducted as a population-based cohort study among selected Indian population. The subjects were recruited among estate workers in Carey Island in the district of Kuala Selangor. A total of 224 subjects (82 males and 142 females) with an age range from 25 to 74 years old were interviewed. The data on demographic characteristic, oral habit practised, quid ingredients used and recalled consumption of food over 24 hours were collected. The subjects were examined by two examiners trained to detect oral lesion. **Results:** Oral potentially malignant lesion were observed in 16.4% of subjects (n=37), 30.8% (n=69) had betel chewer's mucosa, 13.4% (n=30) have other oral mucosal lesion and 39.3% (n=88) had no lesion. Female subjects were the main subjects practising betel chewing (n=123) where there was a significant association with oral potentially malignant lesion and betel chewer's mucosa. The most common combination of ingredients used in the quid were tobacco, areca nut, slake lime and betel leaves (78.0%). Consumption of oils, wheat and fish had a nearly significant relationship for the group with absence of lesion and this may suggest protection offered by this food group. Among cooked vegetables; green leafy vegetables were commonly consumed but there was no significant relation with any condition. **Conclusion:** This study was unable to show any protective effect from consumption of fruits due to its low intake. An area of weakness identified in this study was that the 24-hour dietary food recall method was less accurate to assess the relationship between food group with potentially malignant lesion and betel chewer's mucosa.

Keywords: dietary food, potentially malignant

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A COMPARISON BETWEEN THE SAFETY DENTAL SYRINGE AND THE CONVENTIONAL DENTAL SYRINGE

Tay KK, Ling KS, Chen CJA

Introduction: One third of all reported sharps injuries in dental practice was due to the use of conventional dental syringe. Most injuries were sustained during re-sheathing and disposal of the disposable needle. The injuries occurred at a time when the needles were most likely to be contaminated, having been in the patient's mouth. For the safety of its staff, the Oral Health Division of the Sarawak State Health Department considered to replace its conventional metal reusable dental syringe with safety dental syringes. **Objective:** This is a preliminary study to compare the properties of the safety dental syringe and conventional dental syringe. **Methodology:** ULTRA SAFETY PLUS XL from Septodont, France was selected as the potential system since it was the only system accredited by the British Dental Association (BDA). The ease of needle insertion into the injection site, plunging action, stability, reload, recapping, aspiration, assembling, loading, dismantling, needle disposable and the ease of sterilization were looked into. A total of 66 samples were included in the study. A survey form to collect raw data was designed and pre-tested. A briefing was held to demonstrate the correct way to use the safety dental syringe and filling of the survey form. Forms with incomplete data were excluded. **Results:** Although the safety syringe was better in terms of cross-infection control, it did not have all the desired characteristic of the ideal syringe system. **Conclusion:** In view of the high cost involved in the changeover and the low incidence of reported needle stick injury amongst the dental staff, it is recommended that each dental clinic in Sarawak may keep a small stock for the high-risk patient.

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RADIOGRAPHIC ANALYSIS OF IMPACTED THIRD MOLARS AMONG DENTAL STUDENTS

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Objective: The aim of this study was to determine the prevalence and pattern of impaction of third molars in a group of dental students using radiographic analysis. **Methodology:** This was a descriptive cross-sectional study involving the analysis of the dental records of 160 dental students. Of these, 55 students had dental panoramic radiographs. There were 7 males and 48 females. The average age was 22.1 years. The presence, location, depth, angulation of the third molars, presence of pathology, relation of the nerve to the tooth; and the number and morphology of the roots were recorded. **Results:** Forty three records had at least one impacted third molar. Impacted teeth were more common in the mandible compared to the maxilla (76.3% and 23.7% respectively). Twenty eight records (65%) showed bilateral impacted third molars are most commonly associated with mesio-angular impaction (59.2%), Class 2 ramus relationships (48.1%), Level B impaction (46.8%) and most commonly; having two roots (74.7%). Disto-angular (50%) impaction followed by mesio-angular (40.9%) impaction was most commonly seen in the maxilla and commonly associated with a single root complex (56%). Only 2 (4.6%) radiographs showed signs of pathological changes. In terms of relationship of the third molar to the inferior dental canal, 39.2% were adjacent to the canal while 29.1% were seen superimposed on the canal. **Conclusion:** In this study, majority of the impacted third molars were found in the mandible and bilateral impaction was more common than unilateral impaction. Mesio-angular impaction was most commonly seen in the mandible while the maxilla had almost equal disto-angular and mesio-angular impaction.

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PATIENT'S ANXIETY TO THIRD MOLAR SURGERY

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Introduction: To date, there has been only one study done on anxiety to third molar surgery in the United Kingdom. No specific study has been carried out locally pertaining to this subject. Thus, the findings of this study may serve as baseline information for future investigations. **Objectives:** The aim of this study was to assess the prevalence of dental anxiety to third molar surgery and the degree of severity among the three races in Malaysia. **Methodology:** A total number of 58 patients was involved in this study. Comparisons were made on the amount of pain the patient expected pre-operatively and the actual pain experienced post-operatively. The vital signs were monitored to detect whether there were significant changes pre- and post-operatively. Patients were invited to fill the Modified Corah's Dental Anxiety questionnaire prior to the surgery. Third molar extractions were surgically preformed under local anaesthesia. Expected pain evaluation and pain felt during the surgery was marked on a visual analogue scale. The heart rate and blood pressure was monitored pre- and post-operatively. It was found that 79.3% of the subjects reported being not anxious and only 12.1% were found to be anxious. Surprisingly, only 8.6% of the subjects were extremely anxious. The mean MDAS score was 13.1 and Indian females were significantly more anxious among the group. Most patients cited the drilling and anaesthetic needle as the most fear provoking stimuli. There was a significant difference between pre-operative pain perception and the actual post-operative pain felt. However, in this study there was no significant finding in the pre-operative and post-operative heart rate or blood pressure. **Conclusion:** Further similar investigations should be established in a more representative sample of the population. There is also a need to explore the impact of anxiety on maxillofacial patients undergoing other surgical procedures. This would enable and facilitate the uptake of appropriate measure in alleviating fear and achieving optimum consumers' satisfaction towards improving the quality of service.

Keywords: third molar surgery

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THE EFFICACY OF BENZOCAINE 18% GEL IN REDUCING PAIN DUE TO INJECTION

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Objective: This study was carried out to determine the clinical efficacy of benzocaine 18% topical anaesthetic gel in reducing pain due to injection arising from both pricking and releasing of the local anaesthetic agent into the gums. The topical anaesthetic agent used was benzocaine 18% (Premiere Topicale®). **Methodology:** In this randomized, double blinded placebo controlled study, 60 patients who fitted the inclusion criteria were examined and treated. Thirty patients aged 20 to 77 years old were treated in each group. Male constituted 51.7% of the patients while female 48.3%. **Results:** There was a significant difference in the distribution of teeth extracted between the placebo group and the group given the topical anaesthetic agent. There were no significant differences for other independent variables. Majority of the patients experienced lower pain score than they expected before the procedure. The placebo group gave lower pain score than the group given the topical anaesthetic agent for both pain scale used. Using the VAS scale, the mean actual pain score for the placebo group was significantly lower than the group given the topical anaesthetic agent (p=0.033). Other results for the VAS scale and all the differences in the DPS scale were not significant. **Conclusion:** In conclusion, within limitations of this study, there was no significant difference in the efficacy between benzocaine 18% topical anaesthesia and the placebo. This was suggestive that there were factors other than the pharmacological properties of the materials involved in alleviating the pain perception process of dental injections.

Keywords: benzocaine, injection pain

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DIRECT AND INDIRECT IMMUNO-FLUORESCENCE IN ORAL LICHEN PLANUS AND ORAL LICHENOID REACTIONS

Sumari I, Rosnah Z

Objectives: The three main objectives of this study were to determine 1) the fluorescence patterns and degree of intensity in idiopathic oral lichen planus (OLP) and oral lichenoid reactions (OLR) using direct immuno-fluorescence technique; 2) the fluorescence pattern of basal cells in idiopathic OLP ad OLR using indirect immuno-fluorescence technique; and 3) the relationship between oral lichenoid drug reactions and contact allergy to dental materials (epicutaneous patch testing) using direct and indirect immuno-fluorescence techniques. **Methodology:** Twenty eight patients from the Department of Oral Pathology, Oral Medicine and Periodontology, University of Malaya were selected for this study. Of the 28 patients, 15 (53.6%) were women and 13 (46.4%) were men. The patients' age ranged from 22 to 73 years old with an overall mean of 49.9±12.5 years old. Indians showed the highest prevalence of OLP and accounted for 57.1% of all subjects. This was followed by Chinese and Malays at 25.0% and 17.9% respectively. Oral biopsy specimens were taken and bisected. One half was placed in 10% neutral buffered formalin for standard light microscopic examination and the other half was quick frozen in liquid nitrogen for direct immuno-fluorescence examination. Three biopsy tissues from normal mucosa of healthy individuals were used as negative subject controls. Five milliliters of venous blood were taken and subjected to centrifugation to separate the serum. The serum was used for indirect immuno-fluorescence examination. Five milliliters of venous blood from 3 healthy patients were also taken as negative subject controls. Out of the 28 patients, 19 patients were diagnosed clinically and histologically as idiopathic OLP, 7 patients as OLR and 2 patients as OLP/OLR. Twenty one patients were sent for cutaneous patch test to various components of dental restorative and prostheses materials. **Results:** Out of 7 patients with OLR, 3 were suspected as drug induced oral lichenoid reactions, but all of the 7 patients had relevant dental material associations. Nineteen patients diagnosed with OLP showed linear pattern of intense positive fluorescence to fibrinogen at the basement membrane zone. Six out of 7 specimens from OLR patients showed similar features as in idiopathic OLP. Indirect immuno-fluorescence showed negative result in all specimens of OLP and OLR. Two patients were patch tested positive for nickel sulphate and 2 patients were positive for components of acrylic resin. Direct immuno-fluorescence was positive in all idiopathic OLP and majority of OLR, but the fluorescence pattern and intensity showed no difference. Indirect immuno-fluorescence was negative in all cases. This could possible be due to the small sample size of oral lichenoid reactions. **Conclusion:** This study did not show the significance of immuno-fluorescence (direct and indirect) in differentiating idiopathic OLP and OLR. However, cutaneous patch test may aid in differentiating OLP and OLR, but further investigation with a bigger sample size is needed.

Keywords: oral lichen planus, oral lichenoid reactions, direct immuno-fluorescence, indirect immune-fluorescence

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RADIOLOGICAL ANALYSIS OF THE HISTOLOGICALLY DIAGNOSED UNICYSTIC AMELOBLASTOMA

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Objectives: This study aimed to analyse the radiological pattern and other associated radiological features of the histologically diagnosed unicystic ameloblastoma; and to assess the biological relationship of these findings. **Methodology:** The radiological analysis of the histologically diagnosed unicystic ameloblastoma treated at the Department of Oral and Maxillofacial Surgery, University of Malaya, from 1990 to 2001 was done. Of the 29 cases throughout this period, 7 were excluded due to insufficient or incomplete records. **Results:** There were 11 cases (50%) involving patients diagnosed with age between 21-30 years, 9 cases (40.9%) between 11-20 years and only 2 cases (9.1%); one each for patient aged between 31-40 years and 41-50 years. The mandible was the commonest site for the occurrence of unicystic ameloblastoma (95.5%). As many as 50% of the lesions were in the posterior region of the mandible, 45.5% in the body of the mandible and only 4.5% in the anterior aspect of the maxilla. There were 68.2% (15 cases)of unilocular and 31.8% (7 cases) of multilocular lesions. Sixty percent of the unilocular appearance was detected in patients aged between 21-30 years and 40% between aged 11-20 years. The radiographic pattern of the unicystic ameloblastoma in this study could be segregated as extensive pericoronal appearance (18.2%), pericoronal scalloped (13.6%), periapical unilocular (27.3%), interradicular (9.1%) and multilocular pattern (31.8%). A well-defined radiographic margin was found in all the tumours. Fifty percent were found with scalloped margins, 95.5% with cortical plate expansion, 68.2% with thin inferior border of the mandible and only 9.1% cases with sclerotic radiographic margins. Relationship to the surrounding anatomical structure indicated that 77.3% (17 cases) were associated with tooth/root resorption, 36.4% (8 cases) associated with unerupted tooth and 81.1% (18 cases) with the inferior alveolar dental canal. Of that 77.3% cases associated with root resorption, 94.1% showed apical root resorption and 5.9% lateral root resorption. In association with the unerupted tooth, 75% (6 cases) were found with the tooth totally enclosed in the lesion while 25% (2 cases) showed attachment of the lesion to the crown of the tooth. As many as 81.1% of lesions were associated with the inferior alveolar dental canal, 27.8% showed displacement of the canal and 27.8% also showed disruption or loss of canal cortication. Enucleation was done for 68.2% of the cases, another 27.3% were segmentally resected and 4.5% were marginally resected. Recurrence was found in 13.6% of the lesions. **Conclusion:** Histologically diagnosed unicystic ameloblastoma in this study presented radiographically as unilocular and/or multilocular. The unicystic ameloblastoma was found radiographically to be less aggressive in nature. This was demonstrated by a high percentage of well–defined corticated appearance of the lesion and good radiographic resolution after treatment.

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A PROSPECTIVE STUDY ON ELDERLY PATIENTS WITH FACIAL FRACTURES IN A DEVELOPING COUNTRY

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Objective: This paper describes the incidence, aetiology, treatment and complications of facial fractures seen among the elderly in a developing country. **Methodology:** This prospective study evaluated 85 patients aged more than 60 years who were diagnosed with facial fractures over a period of 12 months in 23 public hospitals nationwide. **Results:** The elderly patients accounted for 4.5% of the total number of patients seen with facial fractures during the study period. Elderly men outnumbered women by a ratio of 4:1 and of these elderly patients, 35.3% had at least one medical condition. The most common medical condition was hypertension. Road traffic accidents were the main cause of injury. The fractures were treated in only 26.2% of cases. Complications were uncommon. **Conclusion:** With a low incidence, and conservative treatment often being practised, the healthcare burden of treating facial fractures among the elderly in Malaysia is at present still low.

Keywords: facial fractures, elderly, Malaysia

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BISPHOSPHONATE-INDUCED OSTEONECROSIS (BON) OF THE JAW: IMPORTANT INFORMATION FOR THE DENTAL PRACTITIONERS

Kanagaratnam SS, Jeya Raman JS

Increasing reports are being published regarding bisphosphonate induced osteonecrosis (BON) of the jaw. The aim of this paper is to increase the dental practitioners' awareness regarding this condition by reviewing the literature. In patients with bone tumours and some cancers, intravenous bisphosphonates (BPs) are given to reduce skeletal events. In osteoporotic patients BPs are given to decrease risk of fractures. Their effects are mediated through inhibition of osteoclasts, though the specific mechanism is unknown. Therefore, physiologic bone remodelling is compromised in patients on BPs. BPs may remain in the body for years, even after treatment has ceased. The exact mechanism of BON of the jaw is unknown. Diabetes Mellitus, exposure to chemotherapy and corticosteroids may play a role in its development. Most commonly, patients present with delayed healing or exposed jaw bone after dental extraction or surgery. Pain, soft tissue swelling, infection with pus discharge and loosening of teeth and paraesthesia may also be noted. Radiographically, early changes may be subtle and difficult to detect. Bisphosphonates do improve the quality of life of patients but has the side effect of osteonecrosis of the jaw which is not treatable (presently). Therefore, patients to be treated with BPs should be orally fit before starting BP therapy. Invasive dental procedures should be avoided after commencement of intravenous BPs and in patients with established BON of the jaw. These patients should be regularly reviewed henceforth. Dental clinicians should also identify patients at risk of having the condition and treat them accordingly.

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A FIVE-YEAR RETROSPECTIVE STUDY OF DENTO-FACIAL INJURIES AMONG PRESCHOOL CHILDREN IN MALACCA

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Objectives: The objective of this study was to determine the pattern of dento-facial injuries seen among preschool children in a public dental service at a hospital in Malacca. **Methodology:** This is a retrospective study based on records of children aged up to 6 years old with dento-facial injuries seen in Malacca Hospital between 01 January 2002 and 31 December 2006. **Results:** During the five years, 268 preschool children were seen and they made up 8.69% of the total number of dento-facial injuries seen in the hospital for that period. Males outnumbered females by a ratio of 1.8:1. Falls accounted for 83% of the injuries. Soft tissue injuries were the most common injury encountered (94%) with the lips being the commonest site of injury. Dental injuries were seen in 37% and bone fractures in 3%. **Conclusion:** The findings of this study differed in some ways from studies conducted in other countries. The findings are useful for resource planning and prevention strategies.

Keywords: dento-facial injuries, preschool children, epidemiology, facial trauma

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METASTATIC MALIGNANT PERIPHERAL NERVE SHEATH TUMOUR TO THE ORAL CAVITY: A CASE REPORT

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Malignant peripheral nerve sheath tumour (MPNST) is closely associated with neurofibromatosis. Usually the lesion will metastasize to the lung. Other extra-pulmonary common metastatic sites include bone, liver, lymph node and the brain. A case of MPNST which metastasized to the mandible is presented. A 36 year-old Indian lady was referred for evaluation of a swelling on the right mandible which extended from the right lower first premolar to the right lower third molar tooth. The intra-oral mass affected her speech and occlusion. Her past medical history revealed that she was diagnosed with neurofibromatosis at the age 18 years old. She also presented with swelling and pain over her right thigh for which a biopsy was carried out and reported as MPNST. An incisional biopsy was performed on the intra-oral growth and a metastatic MPNST was diagnosed. To date, this is the first reported case of MPNST which metastasized to the oral cavity.

Keywords: malignant peripheral nerve sheath tumour, metastatic, oral cavity.

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ORAL MYIASIS : A REPORT OF 3 CASES

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Oral myiasis is an uncommon condition in which the larvae of flies (maggots) are found in the mouths of living persons. In this article, three cases of oral myiasis are described. The condition and the management are discussed.

Keywords: oral myiasis, maggots.

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RELATIONSHIP BETWEEN PATIENTS' PERCEPTIONS AND CLINICAL INDICATIONS FOR DENTAL EXTRACTION IN MUKAH DIVISION, SARAWAK

Ling XF , Chen C JA

Objective: The aim of this study was to examine the patients' perception of dental extractions. The specific objectives were to understand the purpose of extractions from the patients' perceptions with clinical indications for dental extraction. **Methodology:** The survey was conducted using self-administered, structured questionnaires to collect the necessary information. **Results:** From the survey we found that toothache (33%) and the presence of cavities (34%) were the main reasons for extraction from the patients' point of view. Besides that, the number of patients requiring extractions decreased with age. The main clinical indication for tooth extraction was caries (73%) and of these, 29% of restorable teeth were extracted.

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CRANIOFACIAL ANTHROPOMETRIC NORMS OF THE ORANG KUALA OF JOHOR, MALAYSIA

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Objective: This study was done to establish the craniofacial anthropometric norms of adult Orang Kuala, a sub-group of Orang Asli (indigenous people) of Malaysia. **Methodology:** The study group consisted of a convenient sample of villagers who volunteered for the study. The mean age was 28.95 (9.34) years. The participants were generally healthy and exhibited no craniofacial abnormalities and had no history of plastic or reconstructive surgery. Subjects of mixed parentage were excluded from this study. Standard anthropometry instruments and methods were employed. Twenty-one (21) linear measurements were taken from twenty-two landmarks over five craniofacial regions. The methodology was adapted from Hajnis *et al.* Orang Kuala's intercanthal width is consistent with that reported among other ethnics. **Results:** Their nasal feature mimics that of the classic negroid nose i.e. wide alar and short nose. They were also noted to have a long head with decreased head height and narrow head width, indicating a dolichocephalic (long narrow) head. In the orbital region, they have increased binocular width as well as eye fissure length, but with small eye opening. This gives them long narrow-slit eye, similar to that normally noted in the Chinese. They also manifests some facial features of the Malay, namely almost similar length in face height and mandible width, but a decrease upper face and mandibular height, giving them a stout lower jaw profile. In conclusion, this study established the craniofacial anthropometric norms of the Orang Kuala over 21 parameters. **Conclusion:** The findings suggested that the Orang Asli Kuala manifested facial features that are a mixture between the African (negroid) and the Malay and Chinese, both of whom are Mongoloid stock.

Keywords: craniofacial anthropometry, measurements, ethnic, aborigine, Asia

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CASE SERIES ANALYSIS OF ORAL CANCER AND THEIR RISK FACTORS

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Introduction: Cancer causes approximately 12% of all deaths throughout the world and is the third leading cause of death in developing countries. In Malaysia , Indians have the highest incidence of mouth cancer compared to other races, and females are more affected compared to males. **Objective:** The main objective of this study was to analyze the cases of oral cancer treated in the dental department of Penang Hospital, Malaysia and to determine the risk factors associated with oral cancer. **Methodology:** The medical reports of all the patients with oral cancer treated in the dental department of Penang General Hospital from 1994 to 2004 were reviewed. **Results:** There were 46 cases of oral cancer treated by the dental department of Penang General Hospital during this time period. Of these, 22 were males and 24 females. The mean age of the patients was 61.2 years old. Indians comprised the majority of the cases (n=23; 50%) followed by Malays (n=12; 26.1%) and Chinese (n=11; 23.9%). Of these cases, 54.3% (n=25) had used quid, 39.1% (n=8) smoked cigarettes and 32.6% (n=15) consumed alcohol. Indians made up 76% (n=19) of all quid users ($p<0.05$). As many as 56% (n=14) of all quid users used the combination of betel leaves, areca nut and lime ($p<0.05$). Female made up 81% (n=17) of the quid users and smokers were solely males ($p<0.05$). Chinese were the highest among the races to smoke (n=6; 54.5%) and consume alcohol (n=6; 54.5%). The most common presentation of the tumours was swelling, pain and bleeding (n=16; 34.8%). The oral mucosa was the commonest site of the tumours with 67.4% (n=31) followed by tongue (n=9; 19.6%) and jaw (n=6; 13%). Histo-pathological examination revealed 91.3% (n=42) of the cases were Squamous Cell Carcinoma. **Conclusion:** Within limitations, this study has shown the risk of cancer due to tobacco and betel quid use. There is a need to develop focused promotion programmes such as prevention of betel chewing among Indian women and reduction of smoking among the Chinese. Further analytical studies such as case control and qualitative studies are needed to determine other influencing factors.

Keywords: prevalence, oral cancer, Penang General Hospital

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RESEARCH
IN
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FEEDING IN CLEFT LIP AND PALATE INFANTS

Periasamy K

Objective: The objective of this study was to determine the incidence of cleft lip and palate in infants and to identify their feeding methods at a regional hospital in Malaysia. **Methodology:** Infants with cleft lip and palate diagnosed at birth from deliveries carried out between 2005-2007 at the Women and Children's Hospital at Likas were classified according to gender and cleft types (CL/P=cleft lip with or without cleft palate, CP=cleft palate only). The babies were initially breast-fed, then introduced to either bottle-feeding with a cross-cut teat or cup-feeding depending on their feeding skills. When feeding was deemed inadequate, a custom-made acrylic feeding plate was fitted to establish either breast or bottle-feeding. The babies were discharged when their oral intake met daily requirements. The data was analyzed by descriptive statistics and logistic regression analysis. **Results:** A total of 54 out of 30,831 newborns were diagnosed with clefts; 80% (n=43) had CL/P and 20% (n=11) had CP only. The overall incidence for cleft births was 1.75 per 1000 live births (1:570). CL/P was more prevalent in males (males 60%, females 40%) whereas CP was higher in females (females 64%, males 36%). The mean birth weight for cleft infants was 3.09 kg. As many as 67% (n=36) of infants did not require intervention while 33% (n=18) required intervention with a feeding plate. Among infants who did not require intervention, 61% were bottle-fed, 33% were breast-fed and 6% needed cup-feeding. Results revealed that there was no significant association between the type of cleft and feeding intervention needed (OR=2.1, 95% CI, p=0.365). **Conclusion:** The incidence of cleft lip and palate in Kota Kinabalu was higher than the national average. A statistically significant effect of cleft conditions on the feeding method could not be demonstrated. The findings of this study showed that 1 in 3 infants with cleft conditions required the use of a feeding plate to promote breast or bottle-feeding.

Keywords: cleft , incidence, feeding plate

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ORAL AND PERIORAL TRAUMA IN CHILDREN ATTENDING THE PAEDIATRIC DENTAL DEPARTMENT IN MALACCA GENERAL HOSPITAL

Saadah A

The Paediatric Dental Department in Malacca Hospital started its operation in January 2007 and is the referral centre for paediatric oral management for the state of Melaka and the adjacent areas of Johor and Negeri Sembilan. As of November 2007, the attendance of patients had reached 2,172 with 736 new cases referred. In this first year alone, 137 patients were seen for management of traumatic oral and perioral injuries to child patients, up to the age of 16. Data analysis on the types of traumatic events, types of dental and bony injury sustained by the patients showed that a large number (61%) of injuries were sustained due to falls. This was followed by injuries due to motor vehicle accidents (30%). As for the types of injury, the main injury sustained was found to be soft tissue injuries followed by laxative dental injuries. Some children also presented with bony fractures. Although peak incidence of oral and perioral trauma are noted to occur in the 2-4 year and 8-10 year age groups (Welbury, 1997), our findings showed no such predilection to any age groups. This study showed the pattern and types of trauma cases in children seen at the Paediatric Dental Department in Malacca General Hospital within its first year of operation.

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A CLINICAL REVIEW ON DENTAL AVULSION AMONGST CHILDREN IN SULTANAH BAHIYAH HOSPITAL, 2001-2006

Hazwani H, Azillah MA

Introduction: Dental trauma occurs in childhood and adolescence with consequences in time and cost for both patient and family. For some individuals, dental trauma will result in time-consuming and costly treatment in childhood which will continue into adulthood. Tooth avulsion is defined as the total displacement of the tooth out of its alveolar socket. It accounts for 0.5% to 16% of traumatic injuries in the permanent dentition. Avulsion of permanent teeth occurs most often in children aged 7 to 9 years old, an age when the relatively resilient alveolar bone provides only minimal resistance to extrusive forces. **Objectives**: The objective of this study was to identify the causes of tooth avulsion, to determine the age range, gender, and race of patients with tooth avulsion, to determine the time lapse between avulsion and seeking dental care, to identify sources of referral and to identify the treatment provided to the patient. **Methodology**: This is a retrospective study of cases treated in the Department of Paediatric Dentistry at Sultanah Bahiyah Hospital from year 2001-2006. **Results**: From the data collected, 30 avulsions were identified and involved either one or more tooth. The identified causes of tooth avulsion were alleged motor vehicle accident (57%), alleged fall (40%) and alleged hit by object (3%). Out of 30 avulsion identified, 70% were males while 30% were females. From the data collected, 80% of avulsion cases involved Malays while the remaining 20% of cases were Chinese. The Casualty Department in Alor Setar Hospital referred 87% of the cases while another 3% were referred from other dental clinics. A further 10% of cases were referrals from the Periodontic Clinic, the Casualty Department at Sik Hospital and the Surgical Department at Alor Setar Hospital. **Conclusion**: The result of this study showed that parents/patients were not aware that the avulsed teeth could be replanted. In addition to this, there was a delay of more than 24 hours in seeking treatment. The percentage of patients seeking immediate treatment was very low when compared with other studies. Hence, preventive educational program should be instituted and they should be aimed at parents, teachers and other health care personnel.

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HARD TISSUE PEDIATRIC FACIAL TRAUMA: A CASE REPORT

Jamilah O

Pediatric maxillofacial trauma is an uncommon occurrence and fractures in children are less common than soft tissue injuries due to multiple factors. However, some children occasionally sustain severe injuries of the face which requires appropriate therapy. This case report describes the management of a 3 year-old girl who presented after sustaining multiple facial fractures and soft tissue injuries following a fall from the fourth storey of a building. Although hard tissue injuries are uncommon among pediatric patients, initial assessment, knowledge and the appropriate treatment of these injuries leads to better recovery with restoration of pre-trauma form and function.

Keywords: hard tissue injuries, pediatric patient, pre-trauma form

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SURGICAL REPOSITIONING OF IMPACTED SEVERELY DILACERATED CENTRAL INCISORS: CASE REPORT

K. Palany T

The term 'impacted incisor with dilacerations' refers to a dental deformity characterized by an angulation between crown and root causing non-eruption of the incisor. The impaction of maxillary permanent incisors have serious consequences on the esthetics, phonetics and occlusal relationship for the young patient. According to literature, surgical exposure followed by orthodontic traction is the treatment most widely used to save an impacted dilacerated incisor. However, in cases of impaction with severely dilacerated incisors; surgical/orthodontic therapy is usually long, complex and generally costly. This report describes a case where surgical repositioning was used as an alternative technique to manage bilaterally impacted severely dilacerated central incisor. A 9 year-old girl was referred for evaluation of non-eruption of the maxillary permanent central incisor. Radiographic examination revealed the presence of impacted central incisor with severe root dilacerations causing inversion of the crowns. The dilacerated incisors were surgically repositioned. The surgical technique, advantages and the result of the surgical repositioning treatment approach would be presented. In conclusion, surgical repositioning should be considered as a treatment option when managing patients with root dilacerations. This is of vital importance in patients who present with impactions which are difficult to treat.

Keywords: dilacerations, impacted incisors, surgical repositioning

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RANULA: AN AUDIT OF 13 CASES

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Introduction: Ranula is a soft tissue lesion which may present as a bluish, slow enlargement of the floor of the mouth, to form a painless, fluctuant, translucent, dome-shaped swelling which is said to resemble a frog's translucent underbelly. **Objective:** The aim of this study was to study the prevalence, demographic and clinical features, management and treatment outcome of ranulas in patients seen in the Paediatric Dental Clinic, Sultanah Aminah Hospital in Johor Bahru, Johor. **Methodology:** A retrospective review was conducted on 13 dental records of children referred to the clinic for the management of ranula lesions from 2001 – 2007. **Results:** Out of 3,098 new cases seen over the study period, 13 (0.42%) patients presented with ranula. The mean age of the patients was 8.5 ± 2.4 years. The male to female ratio was 1:3.3 and the prevalence was highest among the Malays (76.9%), followed by the Indians (15.4%) and other ethnic groups (7.7%). The average duration of the lesion prior to seeking treatment was 5.4 ± 5.2 weeks. The ranula lesions were more commonly seen of the left side (left to right ratio of 1:0.71). At initial presentation, 30.8% of the lesions were larger than 2.0 cm in diameter. All except one case were treated with the marsupialization technique. General anaesthesia was the preferred mode of anaesthesia. A recurrence of the lesion was only observed in 3 cases. To prevent its recurrence, one of the patients required removal of the left sublingual gland. **Conclusion:** Marsupialization is a suitable and effective method for the treatment of ranula.

Keywords: ranula, marsupialization, recurrence

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STEVENS-JOHNSON SYNDROME: A CASE REPORT

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Stevens-Johnson Syndrome (SJS) is an uncommon immune-mediated condition characterized by vesiculo-bullous lesions of the mouth, eyes, skin and genitals. Other associated symptoms include fever, toxicity, pneumonia, arthritis, nephritis or myocarditis. Oral manifestations include generalized oral ulceration with cracked, bleeding and crusted lips. In most patients, the aetiology is not clear but in some, it is precipitated by viral infections (e.g Herpes Simplex), drugs (e.g. Sulphonamides), and malignancies. SJS is a serious systemic disorder with the potential for severe morbidity and mortality. This is a report of a case of a 9-year old Bajau girl with SJS secondary to Cephalexin. Clinically, she had pneumonia, generalized skin eruptions, crusted and fused lips, oral ulceration and limited mouth opening. She was hospitalized for her systemic condition. Her dental management included daily application of 0.2% Chlorhexidine mouthwash, stripping of lip crust and topical Triamcinolone dental paste. Her oral lesions and ulceration healed without scarring and she was well at discharge.

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PAEDIATRIC ORAL LESIONS IN A SPECIALIST'S SETTING FOR THE PERIOD 1997-2007

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Objective: To study the distribution and range of paediatric oral lesions seen at the Dental Specialist Clinic in Sarawak General Hospital for the period 1997-2007. **Methodology:** Data was retrieved from biopsy records at the specialist clinic mentioned for the period 1997-2007. Only patients who were 16 years old or younger were selected. The age groups were divided according to the stage of dentition development; less than 6 years old (primary dentition), 6 to 12 years old (mixed dentition) and 12 to 16 years old (permanent dentition). The lesions were classified into three broad categories: inflammatory/reactive lesions, cystic lesions and tumour/tumour-like lesions. Descriptive analysis of the data was carried out. **Results:** A total of 708 biopsy reports were identified from the year 1997–2007, and 87 cases (12.3%) were in the paediatric age groups. The majority of the lesions (55.2%) were of inflammatory/reactive types, followed by tumour/tumour-like lesions (29.9%) and cystic lesions (14.9%). Of the lesions presented, 47% were in the mixed dentition stage. Majority of the lesions were observed among the Chinese and Malays as compared to the indigenous groups in Sarawak. **Conclusion:** Paediatric oral lesions constituted a considerable proportion of oral pathological cases seen at the Dental Specialist Clinic in Sarawak General Hospital. Majority of these lesions seen were inflammatory/reactive lesions.

Keywords: paediatric, biopsy, oral lesions

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CASE STUDY: A RARE CASE OF PRIMITIVE NEUROECTODERMAL TUMOUR (PNET) PRESENTING ORALLY

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Primitive neuroectodermal tumors and Ewing"s Sarcomas are closely related tumours comprising of malignant small round cells. The major difference between the two is that Ewing's Sarcoma is more undifferentiated whereas neuroectodermal tumour often has neural differentiation. The tumours most often arise in children aged 10 - 15 years old and they usually arise in the medullary cavity in the diaphysis of long tubular bones. It usually then invades the cortex and penetrates the periosteum to produce a soft tissue mass. Clinically it usually presents as a painful, enlarging mass often tender, warm and swollen; suggestive of an infection. In this case study, a 15-year old Malay girl who had been complaining of a gingival swelling and pain for a year had been repeatedly misdiagnosed as having gingivitis/periodontal infection and treated as such. It was more than one year later before she was referred to the specialist and diagnosed as having PNET. This case study would help the dental practitioners to be aware of how this tumour might present intra-orally. Although PNET is very rare, it is also a deadly disease and the earliest possible diagnosis and management could make the difference between life and death for the patient.

Keywords: primitive neuroectodermal tumor, diagnosis, management

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USE OF BIODEGRADABLE INTERNAL FIXATION IN PAEDIATRIC MAXILLOFACIAL TRAUMA PATIENTS

Marimuthoo T

The aim of internal fixation of traumatic and iatrogenic skeletal fracture is to achieve undisturbed fracture healing. The need for plates and screws for fixation is only temporary, until the fracture has united. Internationally, the removal of the metallic hardware varies from routine removal from all patients in some countries to selective removal only from patients who have symptoms in other countries as in Malaysia. The use of biologically inert resorbable implants would eliminate the need for a second operation for their removal, and offers major clinical advantages for the fixation of facial bone fractures in trauma and orthognathic surgery especially in paediatric maxillofacial surgery. Clinical studies have shown that resorbable implants have been used successfully as a rigid fixation device in mandibular osteotomy and craniofacial surgery and that normal growth pattern is probably not disturbed by use of these implants. In contrast, it has been proven that titanium plates migrates as growth takes place. This presentation focused on the benefits in the use of resorbable plates and screws in paediatric patients.

Keywords: biodegradable internal fixation, titanium plates, maxillofacial

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MOEBIUS SYNDROME: CLINICAL AND DENTAL CONSIDERATIONS IN CHILDREN

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Moebius Syndrome (bilateral facial diplegia) is a rare congenital defect, caused by absence or underdevelopment of the 6th and 7th cranial nerves. The main features are lack of facial expression and poor control of eye movements. Other symptoms may include feeding, swallowing, hearing and speech difficulties as cranial nerves 5, 9, 10 and 12 can be affected. In addition, limb deformities and defects of the musculoskeletal system as in Moebius-Poland's sequence, may occur. Children with Moebius Syndrome can have abnormal tongue movement and poor oral clearance, and are at risk of early decay of both primary and permanent dentitions. The maintenance of good oral hygiene measures, clinical prevention and close consultation with a multi-disciplinary team approach becomes imperative. Three children with Moebius Syndrome, the diagnostic features, dental management and the treatment strategies at various stages of their dental development were discussed in the presentation. As there is no specific course of treatment for Moebius Syndrome, early recognition of the syndrome is crucial for long term dental management of the patient through a preventive approach.

Keywords: Moebius , dental

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JOUBERT SYNDROME: CASE REPORTS AND LITERATURE REVIEW

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The aim of this paper is to describe the management of a rare disorder of Joubert Syndrome in a child. Joubert Syndrome is an autosomal recessive neuro-developmental disorder. It is characterized by molar tooth signs, a complex brainstem malformation that reflects aplasia of the cerebellar vermis, thickened and elongated superior cerebellar peduncles and a deepened inter-peduncular fossa that can be seen on axial MRI. Clinically, classic Joubert Syndrome is associated with neonatal hypotonia, ataxia, developmental delay, mental retardation, hyperpnea and/or ocular motor apraxia. Initially, the patient presented with ulceration at the anterior one third of the tongue. The patient was treated conservatively with glass ionomer bandage but the symptoms persisted. Extraction of the maxillary and mandibular anterior teeth was done and the ulcer healed spontaneously. Subsequent review was uneventful. The patient's deciduous first molar teeth and canine started to erupt when the patient was about one and a half years old and there was severe ulceration on the dorsum of the tongue. Extraction and wound debridement of the tongue was done under general anaesthesia. The management of the syndromic patient with neuro-developmental disorder poses a challenge to the paediatric dentist. Thus, knowledge of the aetiology of the neurodevelopmental disorder may help in determining appropriate treatment modality.

Keywords: Joubert Syndrome, neuro-development disorder, treatment modality

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KNOWLEDGE ON PAEDIATRIC DENTISTRY AND REFERRAL ATTITUDE AMONG DENTAL OFFICERS

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Objectives: The aim of this study was to assess the level of paediatric dentistry knowledge among primary care dental officers and their attitude regarding referrals to the specialist. The association between the level of knowledge and referral attitude was also determined. **Methodology:** Standardized self-administered questionnaire survey forms were distributed to fifty dental officers in the state of Selangor. Each participant was asked to answer 13 questions on paediatric dentistry with respect to their knowledge, past history of referral and reasons that hindered referral. The level of knowledge and referral attitude was categorized according to the score summated from every question answered. The data was then analysed using a statistical programme. **Results:** Two-thirds of primary care dental officers had 'good' and 'excellent' level of knowledge regarding paediatric dentistry. Forty-four percent of them had made referrals to the paediatric dental specialist within the last one month. About two-third of the officers would either seldom or never refer cases of fractured anterior tooth or dental anomalies. Doubtfulness regarding the appropriateness of cases to be referred was the reason with the highest proportion that hindered the referral of patients to the specialist. **Conclusion:** Although most primary care dental officers had optimal knowledge on Paediatric Dentistry, only half of them would refer certain groups of patient for specialist care. Their referral attitude was not dependent on their level of knowledge.

Keywords: knowledge, attitude, referral

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THE INCIDENCE OF CLEFT LIP AND PALATE AT SULTANAH BAHIYAH HOSPITAL, 1997-2007

Hairani I , Azillah MA

Objective: The objective of this study was to determine the incidence of the various types of cleft lip and palate among patients attending Department of Paediatric Dentistry; the age range, gender, and race of the patient; to identify sources and reasons for referral and to identify the treatment provided to the patient. **Methodology:** A retrospective study of cleft lip and palate patients attending the Department of Pediatric Dentistry, Sultanah Bahiyah Hospital from year 1997-2007 was conducted. **Results:** From the data collected, 65% of clefts were males while 35% were females. Left-sided cleft lip and palate (39%) was more common than right-sided cleft lip and palate (16%), followed by bilateral cleft lip and palate (30%), isolated cleft palate (11%) and least common isolated cleft lip (4%). Males were more dominant in the left-sided (77%) and right-sided (55%) cleft lip and palate, bilateral cleft lip and palate (69%) and isolated cleft lip (60%), whereas isolated cleft palate was dominated by females (77%). The major source of referrals were from the Plastic Surgery Department (52%), 23% from the Orthodontic Department, 15% from the medical outpatient department and 10% from the dental clinic. The most common reason for referral was early childhood caries (65%), followed by oral hygiene evaluation (30%) and feeding difficulty (5%). **Conclusion:** This study showed that unilateral cleft lip and palate defects were the most common type of clefts, and this was more prevalent on the left side. In all categories, there was a dominance of males with the exception of isolated cleft palate where female dominance was observed. The main source of referral was the Plastic Surgery Department and the most common reason for referral was dental caries.

Keywords: cleft lip, cleft palate, early childhood caries

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THE EFFECTIVENESS OF CHLORAL HYDRATE FOR PAEDIATRIC DENTAL PATIENT CARE

A Edau, Leong KJ

Objective: The aim of this study was to analyze the outcomes for children undergoing dental care under conscious sedation using Chloral Hydrate alone. **Methodology:** Children less than 9 years of age and with anxious behaviour (Frankl Scale Rating 1 and 2) were selected. They were instructed to have a light meal prior to treatment and a standard dose of Chloral Hydrate (50mg/kg) or a maximum does of 1g was administered orally. Treatment commenced when the children began to feel drowsy and sleepy. The overall effectiveness of sedation was scored using the sedation evaluation rating scale (modified from Houpt et al, 1993). **Results:** The study population consisted of 36 children. The mean age was 4.3 years and the mean weight being 16.0kg. Eighteen children (50%) had "good to excellent" level of sedation with all treatment completed. Of these, 16 children (88.9%) had local anaesthetic for various procedures; such as fillings with extractions, extractions and trauma management. The other 18 children had "abort treatment to fair" level of sedation. Of these, 2 children (11.1%) had treatment aborted, 1 child (5.6%) had partial completion of treatment and the rest, 15 children (83.3%), had all treatment completed but with much difficulty and physical restrain was required. **Conclusion:** Chloral Hydrate appeared to be effective in only 50% of the children undergoing various dental procedures.

Keywords: Chloral Hydrate, dental, children

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SELF-INJURIOUS BEHAVIOUR: DENTAL MANAGEMENT DILEMMA

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This paper was aimed at presenting two cases of children with self-injurious behaviour of different aetiology but with similar management approach. Two children, one with Lesch-Nyhan syndrome and the other with mitochondrial cytopathy, were managed at our department for the past few years. These patients were first referred for the management of severe ulceration due to uncontrolled lip biting. The management approach ranged from conservative to invasive treatment methods. They were reviewed regularly to help alleviate their problems. The patients were treated in combination either conservatively, conservative with extraction or extraction of the offending teeth. Conservative treatment that was carried out was a soft mouth guard placed on the maxillary teeth made of soft resin. Clinically, the mouth guard appeared to help the patient temporarily but it involved long term management follow-up and in many cases extraction of the teeth was carried out when conservative method was not successful, or when the biting became more aggressive and incessant. Many different approaches have been described in the literature but the ultimate relief for the patients and their caregivers is the extraction of teeth. This appeared to be the permanent solution to dental or oral problems. The clinical presentation and mode of treatment were discussed.

Keywords: self injurious behaviour, Leshch-Nyhan Syndrome, mitochondrial cytopathy

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PATTERN OF DENTAL ATTENDANCE IN A NEW PAEDIATRIC DENTAL SET-UP

Lorend Telajan A

Objective: The aim of this study was to review the pattern of attendance of medically compromised and special needs children at a new paediatric dental set-up in Sarawak General Hospital (SGH). **Methodology:** A retrospective study of special needs and medically compromised children who presented at SGH's Paediatric Dental Clinic for the year 2007 was carried out. Only children up to 16 years of age were selected. Information regarding demographic data, reason for attendance, pain at referral and mode of treatment were retrieved from their clinical records. **Results:** A total of 58 children (24%) aged between 2 to 16 years old were included in the study out of 245 paediatric attendances. Hospital referral accounted for 34 cases and the remainder was referred from other government dental clinics. Of the 58 children, 39 (67.2%) were medically compromised and they formed the largest group. This was followed by 14 children (24.1%) with intellectual disability and another 5 children (8.7%) had physical disability. The main reason for referral was caries. Half of the medically compromised children had congenital heart defects and they were referred mainly for dental clearance prior to cardiac surgery. Of the 58 patients, 25 of them had experienced at least one episode of pain and 4 children had presented with cellulitis. Comprehensive dental treatment under general anaesthesia was performed on 20 out of the 58 children in which cardiac patients accounted for a third of these cases. **Conclusion:** Medically compromised and special needs children accounted for 24% of the total new attendance at the Paediatric Dental Clinic, SGH. Nearly a third of these children were referred from the Cardiac Department in SGH. A considerable number of children presented with pain on referral.

Keywords: paediatric, attendance

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PATTERN OF REFERRAL TO THE SPECIALIST PAEDIATRIC DENTAL CLINIC IN KOTA BHARU, MALAYSIA

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Objective: The objective of the study was to look at the current pattern of referral to the Specialist Paediatric Dental Clinic in Raja Perempuan Zainab II Hospital in Kota Bharu, Kelantan. **Methodology:** The case notes of all 405 children referred to the clinic from January to Jun 2007 were obtained. Demographic data of age, sex and race, referral source, medical condition(s) of the patient as well as reasons for their referral as stated by the referring practitioners were recorded. **Results:** Although there were many reasons for referral, the most frequent reason was for the management of dental caries; 175 cases (43.2%) occurring in both healthy and chronically sick children. Of the total referrals, 268 cases (66.2%) were from the medical healthcare services whilst 137 (33.8%) were from the oral healthcare services. The highest number of referrals were from the Paediatric Department; 88 cases or 21.7% of the referrals. A total of 182 children (45.0%) were children with physical and mental disability, medical problems and multiple disabilities. **Conclusion:** Concurrent with the demand, paediatric dental specialist services should be expanded and extended to smaller districts with or without general anaesthesia facilities. There is also an urgent need to increase the number of Paediatric Dental Specialist in Malaysia to ensure the continuation of quality dental care for children and adolescents in the country.

Keywords: referral, pattern, paediatric dentistry

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CARIES ANALYSIS OF PRESCHOOL CHILDREN REFFERED TO SULTANAH AMINAH HOSPITAL,JOHOR BAHRU

Noormadiya Y, Mohd Ridzuan MR, Sockalingan G

Objective: The aim of this study was to determine the incidence and demography of children referred to the Paediatric Dental Specialist Clinic at Sultanah Aminah Hospital, Johor Bahru, who presented with caries of the upper anterior deciduous teeth. **Methodology:** Treatment cards of patients 3-6 years of age referred to the Pediatric Dental Specialist Clinic from January 2005 to Disember 2006 were analyzed. **Results:** During the study period, a total of 248 patients between the ages of 3-6 years were referred to the Paediatric Dental Specialist Clinic. Out of this number, 194 (78.2%) patients presented with caries involving the upper deciduous anterior teeth. Children aged 5 years made up the majority of patients and accounted for 31% of the patients. Malays constituted 77% of the patients. As many as 60% of the patients presented with a concomitant medical problem and the most common medical problem was congenital heart disease. There were 32% of patients who had to undergo total oral rehabilitation under general anaesthesia. **Conclusion:** This study revealed that there was a high prevalence of dental caries involving the upper anterior deciduous teeth amongst preschool children who were referred to the Paediatric Dental Specialist Clinic, Johor Bahru. A high percentage of these children also had concomitant medical problems; the most common being congenital heart disease and a fair proportion required treatment under general anaesthesia.

Keywords: caries, deciduous teeth, general anesthesia

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EFFICACY OF THE AUTOCLAVE FOR STERILISATION IN THE DENTAL SETTING

Subramaniam SD, Norizan Ahmad, Noraini Y

Objective: The aim of this study was to determine the efficacy of the vacuum autoclave used in the sterilization procedure of dental instruments in the department of Paediatric Dentisry, Kuala Lumpur Hospital. **Methodology:** The EZTest Biological Indicator (EZTest) is used to test the efficacy of the SES Vacuum 2000 Tabletop Autoclaves autoclaves used in the department. The EZTest comes in the form of glass ampoule and it contains the *bacillus stearothermophilus endospores.* The original colour of the culture is purple and it will turn to yellow if there is a growth (positive). The original purple colour remains if there is no growth (negative). Positive results indicate that the load is contaminated with bacteria while negative shows that there is no contamination. The autoclave was initially run (dummy run) on full cycle without any load at the temperature of 134^0 Celsius for 45 minutes for stabilization of the temperature. The cycle was then repeated with a vial of EZTest wrapped up in a piece of linen and placed in the autoclave. After the completion of a full sterilization cycle (at 134^0 Celsius for 25 minutes), the glass ampoule containing the spores was retrieved and allowed to cool before sending it to Microbiology Unit of Department of Pathology for incubation. A total of thirty three tests were done for each autoclave in the Department of Paediatric Dentistry from 25 January 2007 until 10 December 2007. **Results:** Culture results showed that all the tests were 100% negative on microbiology control. However, two problems were encountered in this study. There were nine untraceable results due to technical errors and there was problem performing weekly test for each autoclave due to autoclave malfunction. **Conclusion:** The vacuum autoclave was found to be efficacious in sterilizing dental instruments when proper usage, regular maintenance and monitoring were carried out. It is recommended that Bowie-Dick test be performed daily to reinforce the efficacy of the sterilization.

Keywords: autoclave, infection control, biological test

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A STUDY OF MEDICALLY COMPROMISED CHILDREN WITH SEVERE EARLY CHILDHOOD CARIES

Sathy Vello CD, Aida Shafiza CA, K.Palany T

Introduction: Severe early childhood caries is a common clinical entity among children referred to Pediatric Dental Clinics. Children with this condition referred for dental management vary in their general medical health. Systemic disease or its treatment can both significantly affect provision of dental care for this category of patients. **Objective:** The aim of this study was to evaluate the prevalence of medically compromised children referred for severe early childhood caries management; to establish the common presenting medical condition and to determine the implications of systemic disease with regards to dental management. **Methodology:** A two-year retrospective study was undertaken of children with severe childhood caries who were referred to the Paediatric Dental Clinic, Ipoh Hospital. Data was collected based on patient records. **Results:** As many as 25% of children had medical problems with implications for dental treatment. About 50% of the above children were in the 3-6 years age group with a male to female ratio of 2:1. The most common presenting medical problem was congenital cardiovascular disorders. **Conclusion:** A significant number of children with severe early childhood caries were medically compromised. There is an increase in morbidity in these children due to their dental disease or treatment undertaken. The appropriate dental treatment was rendered with due consideration for the medical problem present.

Keywords: severe early childhood caries, medically compromised, congenital cardiovascular disorders

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CLINICAL PATTERN OF DENTAL TRAUMA CASES IN KLANG, SELANGOR

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Objective: The aim of this study was to investigate the clinical pattern of cases with injury to the dentition in patients referred to the Paediatric Dental Clinic, Tengku Ampuan Rahimah Hospital in Klang, Selangor. **Methodology:** Data was retrieved from the dental records of patients seen between the months of January 2004 and June 2006. The data was recorded using a standardized survey form. A total of 128 cases were recorded and the information obtained was analyzed with regards to the source of referral, demography, causative factor, type of dental injury and tooth affected. **Results:** Nearly two third of patients were referred from the Accident & Emergency Department in government hospitals. Patients between the ages of 12 to 16 years old were the largest group involved with dental injury (37%). The ratio for females and males involved was 1:3.3. Fall was the major causative factor (53%) followed by motor vehicle accident. Luxation injury (39%) was the most common type of injury followed by uncomplicated crown fracture (32%). Permanent maxillary central incisors were the most commonly affected teeth with a slightly higher proportion of left tooth involvement (30%) than the right tooth (26%). **Conclusion:** It can be concluded that teenagers were the largest group involved in dental trauma with about three times more males than females. The most common type of injury was luxation injury and more than half of the teeth involved were the permanent maxillary incisors. As fall was the major causative factor for dental trauma, public education on its prevention and management is of importance.

Keywords: dental injury, clinical pattern, luxation

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A 6 YEARS REVIEW OF DENTAL TRAUMA IN SULTANAH BAHIYAH HOSPITAL, ALOR SETAR, KEDAH

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Objective: The purpose of this study was to evaluate the prevalence, treatment modalities and clinical outcomes of dental trauma in young permanent teeth in the Department of Paediatric Dentistry, Sultanah Bahiyah Hospital from the year 2000-2006. **Methodology:** A retrospective review was conducted on all dental records of children registered in the dental paediatric clinic under the category of trauma cases. During the period of January 2000 to November 2006, a total of 82 patients presented with 200 traumatized permanent teeth. The data regarding demographic characteristic, prevalence of dental trauma, treatment modalities and clinical outcomes were analyzed. **Results:** The study revealed a total of 82 patients with 200 traumatized permanent teeth presented during the 6 years interval. The age of patients ranged from 6 to 16 years old. Males experienced more dental trauma than females in the ratio of 3:2. The ethnic groups affected were Malays (84%), followed by Chinese and Indians. The major cause of dental trauma was falls (55%); followed by MVA and alleged hits. Maxillary incisors were most commonly affected (84%). The most common dental injury was avulsion (24%) and the least was extrusion (8%). A total of 149 out of 200 teeth were successfully managed with various approaches depending on the types and severity of trauma. There were 51 cases of defaulted treatment. A total of 11 cases of complications were recorded. **Conclusion:** Out of 200 traumatized teeth, 149 were successfully managed with various approaches. Immediate proper treatment followed by subsequent review visit is vital for good long term prognosis of treatment provided. Unfortunately there were incidences of patient or parent defaulting treatment. Hence, preventive educational programs and periodic check-up should be instituted among the public and schoolchildren.

Keywords: traumatized teeth, maxillary incisors, defaulted treatment

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AN INVESTIGATION INTO THE USE OF PERI-OPERATIVE LOCAL ANAESTHETIC IN CHILDREN UNDERGOING DENTAL EXTRACTIONS UNDER OUTPATIENT 'SHORT-CASE' GENERAL ANAESTHESIA

Leong KJ, Ashley P, Roberts G

Introduction: Although local anaesthetic (LA) is still routinely used in young children undergoing dental extractions under general anaesthesia (GA), little is known about its effectiveness in the management of post-operative pain and post-operative discomfort. **Objectives:** The aim of this study was to determine if post-operative pain, anxiety and discomfort experienced in young children who had dental extractions under GA were affected by peri-operative use of LA. **Methodology:** In a prospective, randomized and double blind study, 83 children aged below 6 years old undergoing dental extractions under GA were randomly assigned to receive either; no LA, infiltration injection or intra-ligamental injection of LA. Analgesic suppositories were administered after induction of GA. Post-operative pain scores were measured using the Simplified Toddler-Preschooler Post-operative Pain Scale from recovery at 0 minute, 30 minutes, first night, second night and third night of treatment. Pre-operative and post-operative anxiety scores were measured using the Venham Picture Scale. Post-operative discomfort scores were measured using the Modified Pain/Discomfort Scale form recovery at 0 minute, 15 minutes, 30 minutes and 45 minutes. **Results:** The results of this study showed that the post-operative pain scores, post-operative anxiety scores and post-operative discomfort scores were not significantly different at any time point among the three treatment groups.

Keywords: anaesthesia, paediatric, anaesthetic techniques, infiltration, anesthetic techniques, intra-ligamental, surgery, dental extractions, post-operative, pain

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AGGRESSIVE MAXILLARY SWELLING MIMICKING MALIGNANCY

Raja Zarina RS

A case of an oral pathologic lesion which was complicated by Idiopathic Thrombocytopenic Prupura (ITP) was presented by a 10-year-old girl with a progressive left cheek swelling and thrombocytopenia. The patient's initial clinical presentations, investigations, differential diagnosis, treatment modalities and prognosis were discussed. The CT scan of the patient revealed a solid tumour mass occupying the left maxillary sinus with infiltration and erosion down to the adjacent alveolar process inferiorly and up to the ipsilateral ethmoid sinus with suggestion of adjacent inferior rectus muscle infiltration. The tumour appeared aggressive. A biopsy was performed. Biopsy of soft tissue revealed fibrous tissue with focal granulation tissue. The platelet level was persistently low, and the patient was started on a course of prednisolone but there was no response. Intravenous immunoglobulin was administered to the patient. Treatment was further complicated as the patient had a right fronto-parietal subdural haemorrhage for which a right bur hole was made and drainage done. Subsequently, the patient underwent splenectomy and was put on long-term antibiotic prophylaxis. The patient was subsequently asymptomatic.

Keywords: oral pathologic lesion, biopsy, treatment modalities

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RESEARCH
IN
ORTHODONTICS

CLINICAL PRACTICE GUIDELINES (CPG) USAGE BY DENTAL OFFICERS IN THE MINISTRY OF HEALTH MALAYSIA

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Objectives: This nationwide survey evaluated the perceptions of all dental officers and orthodontists in the Ministry of Health Malaysia on Clinical Practice Guidelines (CPG) and their implementation in the workplace. **Methodology:** Two sets of self-administered questionnaires were targeted at first-year dental officers, dental officers and senior dental officers in one group and orthodontists in another group. **Results:** The response rate was 30% out of a total of 1,327 officers to whom the questionnaires were sent to. Majority of orthodontists responded. As many as 90% of officers have heard of CPGs although some have misconceptions about their purpose and usage. Of those who responded, 77% have read CPGs although only about 60% have actually read CPGs on orthodontics. The ratings for the CPGs were as follows; 12.7% felt that CPGs were excellent, 57.1% rated them as 'good', 3.0% thought the CPGs were satisfactory and 16.0% did not respond to this question. The comments included the following; 'the language was confusing', 'inadequate details and pictures', 'need for improvement', 'irrelevant', 'need CPGs for other orthodontic problems' and 'need to have more knowledge before they could use them'. About 24.6% of the respondents claimed that they routinely use CPGs, 47.2% have used them at some time, 13.2% seldom use them and 1.8% has never used them. The findings also showed that 72.8% of the respondents felt that they were encouraged to use CPGs in their workplace whilst 14.0% did not think so. Only 5.7% did not know where CPGs were kept in their workplace. About 90% of orthodontists have received CPG booklets on orthodontics but the majority have not seen them on the website. Although all felt that CPGs were useful, only 62.5% have introduced CPGs to their dental officers. **Conclusion:** This study showed that the dissemination and availability of CPGs to be reasonable but the implementation CPGs were below expectations. Administrative and clinical senior dental officers were noted to be more aware of CPGs than first-year dental officers.

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INITIAL FORCES PRODUCED BY ALIGNING ARCHWIRES

Farid Patrick A

In a laboratory study, the initial reciprocal intrusive and extrusive forces on all teeth in an arch produced by an archwire and given pattern of deflection were characterized. An apparatus that permitted eight wires to be tested at increments of 0.9mm displacement [0.012"(reel and preformed), 0.014",0.016" and .016" x 0.022" nickel titanium and stainless steel 0.012" and 0.014"]. Further experiments were performed using the apparatus to study the clinical relevance of archwire piggybacks and the force distributions when an archwire was tied to a crowded arch. A force deflection graph was produced which can act as a guide for arch wire selection, revealing an interesting pattern of complex force distributions on teeth with combinations of intrusive and extrusive forces, the former of which is of clinical relevance as the use of high forces could damage the periodontal ligament (PDL). The study also justified the use of 0.018" stainless steel as the main wire in a piggyback mechanism. Interestingly, this study had highlighted the impact of friction in orthodontic appliances, the complexity of future mathematical and computer based model studies and the necessity to produce simulated periodontal apparatus in order to measure forces on all teeth.

Keywords: initial alignment, reciprocal intrusive force/deflection graphs, piggyback mechanism, complexity of force distribution in a crowded arch

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A RETROSPECTIVE INVESTIGATION INTO THE EFFECTS OF CETLIN NON-EXTRACTION MECHANICS ON LOWER DENTAL ARCH TRANSVERSE DIMENSIONS

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The aim of this study was to determine the effect of using Cetlin mechanics on the arch width and arch perimeter of the lower dental ach and to compare them with the changes expected from growth alone. This retrospective study looked into the changes in lower arch transverse dimensions arising from the use of Cetlin non-extraction treatment mechanics. Study models of 34 subjects were measured and data from the Michigan Growth Study acted as controls. The leeway space was also measured. The results showed that the mean arch widths of the canine, premolars and first molar teeth increased after treatment by more than what could be expected from growth. The mean arch perimeter decreased after treatment but by less that what could be expected from growth alone. The mean leeway space in the sample was smaller than in the control group.

Keywords: Cetlin mechanics, non-extraction, transverse changes

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RESEARCH
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PERIODONTOLOGY

CLINICAL PARAMETERS OF PERIODONTAL ABSCESS: A CASE SERIES OF 14 ABSCESSES

Chan Y K, Tien WS

Introduction: According to the Consensus report (1999), periodontal abscess could be defined as a localized purulent infection within the tissue adjacent to the periodontal pocket that may lead to the destruction of periodontal ligaments and alveolar bone. The prevalence of periodontal abscesses in emergency dental clinics was found to be between 8% - 14%. **Objective:** The purpose of this study was to study the clinical features of periodontal abscesses seen in a specialist periodontal unit. **Methodology:** The period of the study was from November 2006 to November 2007 and involved cases with periodontal abscesses at a specialist periodontal unit. **Results:** There were 14 patients with equal distribution of gender. The mean age was 39.6 years. Twelve upper teeth (86%) were found to be involved as compared to two lower teeth (14%). There were more posterior teeth involved; a total of nine teeth (64%) as compared to five anterior teeth (36%). The mean pocket depth associated with the abscesses was found to be 7.4mm. There were ten buccal sites (71%) as compared to four palatal sites (29%). The average temperature of patients was 36.9^{o} C. Only one patient was found to have cervical lympadenopathy (7%). The teeth involved were found to be mostly mobile with mobility of grade I to III (71%). The mean Plaque Index was found to be 1.0 and the Gingival Index was found to be 0.9. **Conclusion:** Posterior, upper teeth and buccal sites were found to be more affected by periodontal abscesses. The abscesses were found to be associated with deep pockets of more than 6 mm. Most patients were found to be afebrile and without any cervical lymphadenopathy.

Keywords: periodontal, abscess, pocket

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COMPARISON OF THE EFFECTIVENESS AND SIMPLICITY IN USE OF INTERDENTAL BRUSHES AND DENTAL FLOSS AS PROXIMAL CLEANING AIDS

Noorlin I

Objective: The purpose of the present study was to compare in untreated patients suffering from mild to moderate periodontitis; the efficacy of dental floss (DF) and interdental brushes (IDB) in the reduction of plaque, gingival inflammation and probing depth in a one month period prior to sub-gingival debridement. **Methodology:** This was a split mouth study where ten patients (7 female and 3 male) were instructed to use DF for one side of the dentition and IDB for the other side as an adjunct to daily tooth brushing for a month. Oral hygiene instruction (OHI) on toothbrushing and the use of the two devices was given at baseline. Measurement were carried out at baseline and at one month for sub-gingival and supra-gingival plaque scores, probing depth, recession and bleeding scores. **Results**: With IDB, the mean approximal supra-gingival plaque score at baseline of 14.5 reduced to 5.7 at one month, and with DF, from 12.9 to 5.3 respectively. Both regiments proved to reduce plaque scores both supra-gingivally and sub-gingivally ($p<0.05$). There were significant differences in bleeding on probing and mean probing depth for IDB sites over time ($p<0.05$), whereas there were no differences on DF sites. However, the mean probing attachment level on DF sites reduced significantly. Overall, there were no differences between the two devices. **Conclusion**: In relation to patient acceptance, IDB was much preferred due to its simplicity. In conclusion, the results of this study found that the use of IDB and DF showed no significant differences in the improvement of the gingival health.

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SERUM IgG ANTIBODY RESPONSE TO PERIODONTOPATHIC BACTERIA IN ADULTS WITH ADVANCED CHRONIC PERIODONTITIS

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Objective: The aim of this study was to determine the serum IgG antibody response to four periodonto-pathogens among three ethnic groups and to define the relationship with periodontal status. **Methodology:** A total of 30 subjects with advanced chronic periodontitis and 30 healthy controls who were ethnically, gender and age-matched were selected in equal numbers from each race. Serum IgG antibody levels to *Pg, Tf, Pi* and *Aa* were assessed by enzyme-linked immunosorbant assay (ELISA). **Results:** Serum IgG antibody responses to all the 4 periodontopathogens were found both in the diseased and healthy subjects. Diseased group had significantly higher antibody titer as compared to healthy controls. Mean serum IgG antibody response to *Pg* was highest in both diseased and healthy groups. Mean serum IgG antibody response to *Pi* was found to be significantly higher in Malays while serum IgG antibody to *Aa* was lower in the Indian population. Mean IgG levels to *Tf* and *Aa* in the Chinese population were higher than those in Malays and Indians. **Conclusion:** Differences in serum IgG antibody profiles to periodontopathogens *Pg, Tf, Pi* and *Aa* were found in Malays, Chinese and Indians; indicating either predominance in colonization by certain pathogens or either enhanced or poor response to their colonization. Periodontal disease was significantly associated with increased serum IgG antibody response to *Pg, Tf* and *Pi.* Loss of clinical attachment correlated positively with IgG antibody response to *Pg* and *Aa.*

Keywords: IgG antibody, periodontopathic bacteria, periodontitis

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THE RELATIONSHIP BETWEEN PERIODONTAL TREATMENT AND CIRCULATING LEVELS OF C-REACTIVE PROTEIN AND INTERLEUKIN-6

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Objective: The objective of this study was to determine the circulating levels of C-reactive protein (C-rp) and Interleukin-6 (IL-6) during the acute phase response of two episodes of non-surgical periodontal treatment in smoker and non-smoker patients with moderate to severe periodontal disease. **Methodology:** Twenty subjects (aged 18 and above) diagnosed with moderate to severe chronic periodontitis and who conformed to the inclusion criteria were recruited. At baseline a full medical, dental and social history was obtained in addition to clinical periodontal assessment. Non-surgical periodontal therapy was carried out on two consecutive days. Venous blood samples were taken at baseline and one hour post periodontal therapy on both the treatment visits. IL-6 and C-rp was assayed using commercially available test kits (Quantikine® High Sensitivity, R&D Systems Europe, Abingdon, Oxon, UK for IL-6 and High Sensitivity C-rp, Kalon Biological Ltd UK for C-rp) as one batch. **Results:** Median and inter-quartile range was used in addition to mean and standard deviation to describe the data and Spearman correlation tests were used to study relationship between the change in circulating levels of IL-6 and C-rp after treatment and the other variables. Wilcoxon signed-ranked matched pairs tests were carried out to test the differences in the circulating molecules between assessments. There were statistically significant increases in levels of circulating IL-6 ($p=0.001$) from baseline to 24 hours post therapy and the level of increase was more marked in the non-smokers compared to current smokers. **Conclusion:** Within limitations of this study, it may be seen that the two episodes of non-surgical periodontal therapy carried out on two consecutive days on patients with moderate to severe untreated chronic periodontitis led to an elevation of circulating levels of C-rp and IL-6.

Keywords: periodontal therapy, C-reactive protein, Interleukin-6

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HEALTH STATUS AMONG PERIODONTAL PATIENTS AT THE PERIODONTIC UNIT IN SULTAN MAHMUD DENTAL CLINIC, KUALA TERENGGANU

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Objectives: This study was aimed to assess the health status of the periodontal patients, to identify the severity of periodontal disease among patients with health problem(s), to compare the severity based on gender and age; and to identify the response rate to the need for early treatment of periodontal patients with health problem(s). **Methodology:** This is a retrospective study involving periodontal patients who came to the Sultan Mahmud Dental Clinic from January to December 2005. The required information was collected from PG 101, PG 102 and the LP12 (dental treatment card). **Results:** Based on the study criteria of periodontal patients with health problem(s), 46 subjects were identified. Of these patients, 21 (45.7%) had diabetes and 20 (43.5%) had hypertension. As many as 59% of them suffered one health problem while 41% had more than one health problem. For the severity of periodontal disease, 37% of the patients had a score of 4 for the Basic Periodontal Examination which was higher among the males (54.3%) as compared to the females (45.7%). This severity was higher among the age group of 46-55 years old as compared to the age group of 15-25 years old (2.1%). The study also showed that 43% of the patients did not respond to the need for early treatment. **Conclusion and Recommendation:** Periodontal health and early treatment of periodontal disease is linked to the health status of the patient. For treatment to be effective and to maintain periodontal health, the patients' cooperation and commitment is important in plaque control. Hence, in order to further improve the oral health status of the public, it is recommended that the delivery of oral health knowledge regarding periodontal health be strengthened in the oral health services.

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ROOT AND ROOT CANAL MORPHOLOGY OF MAXILLARY FIRST PREMOLARS IN MALAYS

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Objectives: The objective of this study was to study the external root and internal root canal morphology of the maxillary first permanent premolar in a Malay population. **Methodology:** A total of 255 teeth were examined visually for external root morphology. The teeth were rendered transparent by using a modified clearing technique. A total of 242 teeth were available for the study of root canal morphology using a stereomicroscope at 7-20x magnification. The data collected was analysed using the chi-square test. **Results:** The prevalence of double-rooted and single-rooted teeth was almost equal. When teeth with one root and completely fused roots were combined together, the prevalence of single-rooted teeth was higher than any other root form. Two root canals at the apex were the most prevalent (58.2%) and type IV (2 canals) in Vertucci's classification (1984) was the most common root canal configuration with a prevalence of 43%. Lateral canals were present in 41.3% of the sample and they were equally distributed at different level of the roots. Accessory canals and apical ramifications which were less prevalent were present in 27.7% and 11.6% respectively of the sample. Intercanal communications were present in only 33.1% of the teeth. Major apical foramina were almost equally placed in lateral (55.2%) and central (44.8%) locations. Type B, without obvious apical constriction, was the most prevalent apical configuration type (72.6%). The age and gender of the subjects did not show any significant influence on root canal morphology of the teeth. **Conclusion:** Root canal morphology in maxillary first premolars showed some degree of complexity and this should be considered during endodontic, prosthodontic and periodontal treatment.

Keywords: root, root canal morphology, maxillary first premolars

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EFFECT OF POLISHING ON THE MATRIX-FORMED SURFACES OF RESIN COMPOSITE

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Objectives: The objectives of this study was to determine the polishing system that would result in the smoothest surface for the resin composites tested and to determine whether there was any interaction between the resin composites Filtek Supreme (3M ESPE Dental Products, St Paul Minn USA), Esthet-X (Dentsply/Caulk USA) and Spectrum (Dentsply/Caulk, USA) with various polishing methods. **Methodology:** Forty specimens were made for each material (10mm in diameter and 2mm thick). The specimens were divided into four groups according to the polishing systems: group 1-Matrix finish (control), group 2-Enhance discs (Dentsply/Caulk, USA) and POGO micro polisher discs (Dentsply/Caulk, USA), group 3-Enhance system (Dentsply/Caulk, USA). The specimens were polished and then the mean surface roughness (Ra) were determined with a profilometer (Surftest, Mitutoyo, Japan). The data were subjected to analysis of variance (ANOVA) and Dunnett T3 post-hoc test. **Results:** The Enhance polishing system showed significantly highest mean roughness value for all the resin composites tested whereas the matrix finish which was the control group demonstrated a significantly lowest mean roughness value for all resin composites tested. Of the materials investigated, Filtek Supreme resulted in significantly lowest mean roughness value for all the polishing methods when compared to the other resin composites. Esthet-X and Spectrum displayed variable roughness depending on the polishing systems used. For Filtek Supreme, the lowest mean Ra was obtained with Enhance and POGO. However, Sof Lex polishing discs produced the lowest mean roughness value for all specimen groups. **Conclusion:** In general, Sof Lex is to be recommended as the preferred polishing method for Filtek Supreme, Esthet-X and Spectrum as it produced the lowest overall mean roughness value. The combination of Enhance discs and POGO produced a smoother surface for all resin composites tested when compared to the Enhance system. The combination of these two materials also reduced the number of steps needed in polishing resin composites. Therefore, Sof Lex discs and Enhance discs combined with POGO could be considered for clinical use as a preferred polishing system for these resin composites.

Keywords: effect, polishing, matrix-formed surface, resin composite

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ROOT AND ROOT CANAL ANATOMY OF MAXILLARY FIRST PERMANENT MOLARS IN A MALAYSIAN POPULATION

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Objective: The aim of this study was to investigate the association of the root and root canal anatomy with race, gender and age of the origin of specimens in a Malaysian population. **Methodology:** One hundred and ninety four maxillary permanent molars from a Malaysian population were studied to determine the root and root canal anatomy. The root anatomy was studied macroscopically and the root canal anatomy was studied microscopically after injecting a dye ink into the canal system and rendering the teeth transparent by a clearing technique. **Results:** All specimens, except for one tooth that had two roots, were three rooted (99.5%). There were 81.3% of mesiobuccal, 39.4% of distobuccal and 58.8% of palatal roots curved toward the distal, mesial or S-curvature and buccal respectively. Root fusion was detected in 7.7% of the teeth, of which fusion of mesiobuccal root with distobuccal root and palatal root with distobuccal root most prevalent. C-shaped root was found in 2.6% of the overall specimens. No C-shaped root canals were found. There were 57.7% and 9.0% of mesiobuccal roots that had two and more than two canals (at the pulp chamber floor) respectively. However, the frequency among Vertucci's types I (17.5%), II (16.9%), IV (15.9%) and VI (16.9%) was similar. Type I was the most prevalent type in distobuccal (78.8%) and palatal (95.8%) roots. Lateral canals (42.7%) and transverse anastomoses (47.2%) were most commonly found in mesiobuccal roots. The majority of mesiobuccal roots had one apically and one laterally placed foramina (39.2%) whilst one apically placed foramen was more common in distobuccal (74.6%) and palatal (53.6%) roots. Mesiobuccal roots also had the highest frequency of apical delta (3.6%). **Conclusion:** There was no statistical significant association between root and root canal anatomy with race, gender or age of the origin of the specimens studied when tested with chi-square test and binomial logistic regression.

Keywords: root, root canal anatomy

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THE EFFECTS OF USING FIBRES ON FRACTURE RESISTANCE OF COMPOSITE RESINS

Saripah Saud

Objective: The aim of this study was to investigate the effects of polyethylene and glass fibres on the fracture resistance of composite resins. **Methodology:** Rhombic test specimens 2 x 2 x 25 mm for five groups were prepared. They were divided into the control group comprising of Group I which is Targis and Group II which is TPH Spectrum and; the test groups comprising of Group III which is glass fibres (Vectris)/ Targis, Group IV which is polyethylene (Connect)/TPH Spectrum/ silane coupling and Group V which is polyethene (Connect)/ TPH Spectrum group. All specimens were stored in water at 37 ± 1^{O}C for 24 hours and tested dry at room temperature. A three-point bending test was used to measure the fracture resistance. The fractured specimens were analyzed under Image Analyser and Scanning Electron Microscope for load fracture. The data were analyzed using an independent sample t-test for Group I and III and one-way ANOVA for Groups II, IV and V. **Results:** An independent samples t-test showed that there were significant differences in fracture resistance between the control group; Targis and test group Vectris/Targis. The fracture resistance results showed that the mean fracture resistance for Targis was 159.65 Mpa, Vectris/ Targis was 177.63 MPa, Connect/ TPH Spectrum was 193.64 MPa, Connect/ TPH Spectrum/ Silane coupling was 175.59 MPa. **Conclusion:** Placement of glass and polyethylene fibres in composite resins increased the fracture resistance of both group. Image analysis and scanning electron microscopy showed the presence of horizontal and vertical fractured lines without catastrophic fracture. Silane coupling agent that was used here showed that there was no added improvement in fracture resistance after treatment with silane coupling on the fibres and composite resins.

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AN APRAISAL OF THE CLINICAL RECORD KEEPING PROCESS FOR REMOVABLE PROSTHODONTICS

Balkis G , Zakiah MI

Objectives: The aim of this study was to compile an archive of the records of patients treated with removable denture prostheses at the University of Malaya's removable prosthodontic clinic, and to evaluate the current system of record keeping for removable prosthodontic patients. **Methodology:** Prosthodontic treatment records of 278 patients treated by a cohort of 77 final year dental students in the academic year of 2002-2003 were reviewed. A list of fields of interest relating to patient factors, prosthodontic treatment needs, treatment procedures, problems encountered and methods of overcoming problems were drawn up. These fields were used to build a computer database incorporating all information required to comprehensively document a patient's treatment record. Information entered into the database were then analysed. **Results:** The results from this study showed that the current method of documentation of patient's treatment is not adequate to provide enough information for audit and research purposes regarding removable prosthodontic treatment and training of undergraduate dental students. Although adequate in terms of number and type of prosthodontic treatment provided, most records only indicate the treatment stage carried out, with scant regard for detailed information regarding material used, problems encountered and methods of overcoming problems. **Conclusion:** Several changes are necessary to improve the standard of undergraduate clinical record keeping, so as to provide adequate information on the removable prosthodontic needs of patients attending treatment at the Faculty of Dentistry, University of Malaya, and to facilitate research, audit and training purposes.

Keywords: record keeping, removable prosthodontic, database

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AN EVALUATION OF THE MECHANICAL PROPERTIES OF A LIGHT-POLYMERIZED DENTURE BASE POLYMER

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Objective: The aim of this study was to compare the hardness and flexural properties of a relatively new light-polymerized urethane dimethacrylate polymer to other denture base polymers. **Methodology:** Specimens of light-polymerized urethane dimethacrylate denture base polymer (Eclipse), were prepared by first investing a Perspex block of size 70 x 50 x 3mm in a conventional metal flask which was preheated in a special oven at 55^{o} C for 2 minutes to improve adaptation of the resin. The resin was adapted using finger pressure. Air barrier coating agent was applied on the resin and pressed with a glass slab to allow uniform thickness of the material. Specimens of heat-polymerized PMMA (Meliodent) were prepared by investing a Perspex block of size 70 x 50 x 3mm in a conventional metal flask. The powder:liquid ratio was 23.4gm:10ml. The po;lymerization cycle was accomplished in a water bath with a cycle of seven hours at 70^{o} C followed by one hour at 100^{o} C. Specimens of chemically-polymerized material (Probase Cold) were prepared using the powder : liquid ratio of 20.5gm:10ml. The flasks were maintained under constant pressure at 80 bar for 30 minutes at room temperature (23^{o}C). Specimens were then immersed in water at 37^{o}C for 30 days. Surface hardness test was conducted on a Shimadzu hardness tester, and flexural strength and flexural modulus were measured by using an Instron machine according to ISO specification 1567:1999 for denture base polymers. ANOVA and post-hoc Scheffe's test were used for statistical analysis at significance level of p=0.05. **Results:** Eclipse denture base resin had a surface hardness of 19.37, Meliodent resin recorded 17.03, and Probase Cold resin recorded 16.03. Eclipse resin had a flexural strength of 103 MPa, Meliodent resin had 78 MPa and Probse Cold resin had 63 MPa. Eclipse resin had a flexural modulus of 2498 MPa, Meliodent resin had 1969 MPa and Probase Cold resin had 1832 MPa. **Conclusion:** The results of this study showed that light-polymerized denture base polymer (Eclipse) exhibited significantly higher surface hardness, flexural strength and flexural modulus than polymethylmethacrylate (PMMA)-based denture base polymers. A comparison between the two PMMA-based polymers, heat-polymerized denture base polymer (Meliodent) showed a significantly higher surface hardness, flexural strength and flexural modulus compared with chemically-polymerized denture base polymer (Probase Cold).

Keywords: mechanical properties, light-polymerized.

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EFFECT OF FINISHING PROCEDURES ON SURFACE ROUGHNESS OF SELECTED TOOTH COLOURED RESTORATIVE MATERIALS

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Objectives: The objectives of the study were to determine the most appropriate method of finishing and polishing a conventional glass ionomer (Ketac™ Fil), a resin modified glass ionomer (Fuji II LC), a compomer (Dyract®AP) and a hybrid composite (Spectrum TPH Compules® tips). The study will also evaluate the effect of a surface sealer on the polished surfaces of these selected materials. **Methodology:** Eight disc-shaped specimens (8mm x 2mm) of each material were fabricated using a Perspex split mould. Each group of 20 specimens were then subjected to finishing and polishing with Sof-Lex™, diamond and aluminium oxide burs (white® stones)and Enhance® System (One of the system was recommended by the manufacturer) respectively, with the celluloid matrix finished specimens being the control group. Half of the specimens from each group (n = 10) had a surface sealer Biscover® (BISCO) applied. Surface roughness (Ra) of polished, polished and sealed and control groups were measured using Profilometer SV-400 (Mitutoyo, Japan). Representative specimens from each group were examined using scanning electron microscopy. Data for surface roughness were subjected to Analysis of Variance (ANOVA), Dunnett T3 post-hoc test (Ketac™ Fil) and Kruskal-Wallis analysis (other materials). Independent t-test was used for comparison of sealed and unsealed surfaces. **Results:** The control (unpolished) group showed consistently lower Ra values for all materials. The ranking of mean Ra values by polishing systems for each material was Ketac™ Fil : Enhance < Diamond bur + White Stones < Sof Lex and; Fuji II LC / Dyract® AP/Spectrum TPH: Sof Lex < Enhance < Diamond bur + White Stones. Independent t-test showed significant differences between sealed and unsealed mean Ra values for all materials ($p<0.001$). **Conclusion:** Within the limitations of this study, the smoothest surface was obtained in the control group (celluloid matrix finished surface), Ketac™ Fil with Enhance® and Fuji II LC/Dyract® AP/Spectrum TPH with Sof-Lex™ groups. Polishing systems recommended by the material's manufacturer(s) did not produce the smoothest surface. Application of a surface sealer significantly improved the smoothness of surfaces irrespective of the type of material and polishing procedures employed.

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