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HONG KONG

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Issue 1 – 2012

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Welcome to the first edition of **Dental Research Review**, a unique Hong Kong publication bringing you the most important recent research from the world of Dentistry.

The Dental Review has been established to help make life easier for the dental community in Hong Kong. Every month thousands of scientific publications are printed worldwide containing a multitude of new studies. Keeping up is hard and requires significant time to screen out what is irrelevant to your practice. We aim to save you time finding what is interesting so you can spend more time doing what you're best at.

The Dental Review is a summary of what we think are some of the most significant recent papers, plus our commentary on why they are important and how they can potentially affect practice. The Review also provides references to the abstract so you can make your own judgements.

If you have colleagues or friends involved in dentistry in Hong Kong who would like to receive our publication, please send us their email or forward on the review and encourage them to subscribe on www.researchreview.hk.

We hope you find this first edition stimulating reading and look forward to hearing your comments.

Kind Regards

Professor Lakshman Samaranayake

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The ability of pulp sensibility tests to evaluate the pulp status in primary teeth

Authors: Hori A et al

Summary: The aim was to establish the ability of thermal and electric pulp tests (EPT) to assess pulp status in primary teeth. Thirty-six children aged 6 to 8 years were involved and 78 teeth investigated. Twenty-two teeth were intact with no evidence of pulp disease and 56 had unknown status but required endodontic treatment due to caries. Each tooth was cold, hot and EPT tested. Heat was provided by a stick of warm gutta-percha. The appearance of the pulp in the access cavity provided the gold standard. The most accurate test was the EPT, followed by heat and cold.

Prof Gary Cheung: Electric pulp test produces a higher positive and negative predictive value for the pressure and absence of pulpal necrosis, respectively, compared with hot or cold test. That is reassuring. Although the study was done on deciduous teeth, similar conclusion had been reached for adults before. For most dentists, EPT is probably the most convenient among the three tests

Reference: *International Journal of Paediatric Dentistry*. 2011;21(6):441-445

<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-263X.2011.01147.x/abstract>

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For full bios please [CLICK HERE](#)

Gingival blood glucose estimation with reagent test strips: a method to detect diabetes in a periodontal population

Authors: Shetty S et al

Summary: The authors investigated 356 patients with unknown history of diabetes who attended a periodontics clinic. They were divided into healthy, gingivitis and periodontitis groups. Blood was collected from the interdental papilla onto a test reagent strip, and patients were then sent for a glucose tolerance test when indicated. If this was abnormal they were referred to their doctors. Some 47% had elevated gingival blood glucose and 19% of the patients in the survey were diagnosed with diabetes. This was more common in the gingivitis and periodontitis groups.

Prof Lijian Jin: Periodontal disease and diabetes are significantly interrelated. Uncontrolled diabetes greatly increases the risk and severity of periodontal disease, while periodontal disease may affect glycemic control and increase the risk of diabetes complications. Furthermore, successful periodontal treatment may improve glycemic control in type 2 diabetes patients. This study suggests that undiagnosed diabetes patients in periodontal clinic may be identified using a fast chair-side test strip on gingival blood sample. However, further longitudinal studies with large patient pools are required to validate the effectiveness and suitability of the test to be undertaken by dentists in daily practice for oral and general health.

Reference: *Journal of Periodontology*.2011;82(11):1548-1555

<http://tinyurl.com/gingival-blood-glucose>

Factors influencing the shade matching performance of dentists and dental technicians when using two different shade guides

Authors: Alomari M, Chadwick RG

Summary: Restorations are usually matched to the shade of the adjacent natural teeth. An additional approach is to record the shade of the prepared tooth so it can be replicated on the die used to make the prosthesis. This study investigated the colour vision of dentists (40) and technicians (18) and related this to their performance matching the shades of 6 prepared extracted teeth. Their results in the colour hue test were not a good predictor of performance, which was not influenced by age or gender.

Prof Gary Cheung: The perception of colour is rather subjective and seemingly unable to be standardized, even with the use of standard lighting or shade matching method. As such, dentistry remains more an art than science, especially when aesthetic is concerned.

Reference: *British Dental Journal*. 2011;211(11):E23

<http://tinyurl.com/6vx9c8k>

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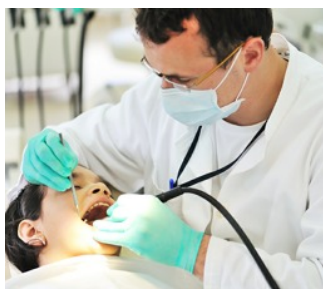
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A clinical predicament –diagnosis and differential diagnosis of cutaneous facial sinus tracts of dental origin: a series of case reports

Authors: Gupta M et al

Summary: Products of pulp infection take the path of least resistance from the root apex through bone and soft tissue. Cutaneous sinus tracts are uncommon but easy to be incorrectly diagnosed, as they are often symptomless. This paper presents four cases, one in the anterior mandible, two from the mandibular molar region and one from a maxillary premolar. Diagnostic guidelines, use of gutta-percha or lacrimal probes to track the origin and a lengthy differential diagnosis list are provided.

Prof Lijian Jin: A cutaneous facial sinus tract of dental origin is challenging for diagnosis and in-time management by dentists, due to its uncommon and 'silent' occurrence. Thorough assessment of the primary infectious origin and correct diagnosis (differentiate diagnosis includes other oral and mycotic infections, cysts, skin lesions and squamous carcinoma) are crucial for effective treatment of this unusual infection. The infectious origin can be traced and identified with gutta-percha on orthopantomogram and radiographs as well as by pulp test. Successful treatment lies on elimination of the infectious source through root canal treatment or extraction as appropriate, and removal of sinus tract lining

Reference: *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontics*.2011;112(6):e132-e136

<http://tinyurl.com/cutaneous-sinus-tracts>

A comparison of conventional and new rubber dam systems in dental practice

Authors: Feierabend SA et al

Summary: Two hundred patients received at least one treatment with conventional rubber dam and one with a new system (OptraDam, Ivoclar Vivadent) introduced in 2005 and which requires no clamps or frame. Dental students, staff and patients completed questionnaires on the advantages and disadvantages of the systems and their preferences. The general preference of the patients was for the old system (52%). The insertion of both systems was considered easy, with the new dam needing clamps only 48% of the time. While the OptraDam outperformed the conventional system for anterior teeth, overall the preference was for the conventional dam.

Prof Gary Cheung: New is not necessarily better. The traditional rubber dam system works well, is versatile and remains as the preferred means for tooth isolation by patients, dental students and clinicians/instructors in the dental school. Despite this, the authors has pointed out that "ergonomic aspects and aseptic techniques (offered by the use of rubber dam) are refuted in favour of alleged economic reasons". That was sad in view of all the advantages afforded by this optimal means of tooth isolation.

Reference: *Operative Dentistry* 2011;36:243-250

<http://www.jopdentonline.org/doi/abs/10.2341/09-283-C?journalCode=odnt>

Treating a maxillary midline diastema in adult patients: a general dentist's perspective

Authors: Chu CH et al

Summary: An account is given of the maxillary midline diastema and how it may or may not constitute an aesthetic problem. Five cases are then described, with treatment involving composite buildup, porcelain veneers and three with orthodontic components in their management.

Prof Tak Chow: It is important to make an accurate diagnosis including the cause, and the patient's expectation and preference. Orthodontic treatment should always be considered for space closure. Whenever possible, composite resin buildup is preferred and crowns should be avoided. Porcelain veneer can be used for teeth discolouration that cannot be treated by bleaching. The best results/outcomes are often achieved by combination of orthodontic and restorative treatments.

Reference: *Journal of the American Dental Association* 2011;142:1258-1264

<http://jada.ada.org/content/142/11/1258.abstract>

Association of pulp stones with coronary artery stenosis

Authors: Ezoddini-Ardakani F et al

Summary: Researchers have proposed that the pathogenesis of pulp stones is similar to that of calcified atheromas found in cardiovascular diseases. Sixty-one patients aged up to 55 years undergoing X-ray coronary angiography were invited to have panoramic dental radiographs taken. These films were viewed with a4.5x magnifier. Pulp stones were counted and were present in 82% of patients who had at least one significant coronary artery stenosis. They were found in 48% of patients with normal coronary arteries.

Prof Lakshman Samaranayake: The exact way in which pulp stones develop is still a mystery. There are however some who contend that the development of pulp stones is similar to that of atheromatous plaques. If this assumption is correct then there should be a direct correlation between these two phenomena and this report attempts to do so. The fact that authors found a plausible relationship between the latter phenomena in this report is interesting. However, more data is required before we inform patients with pulp stones that they are likely to have a coronary event or a stroke!

Reference: *Community Dental Health* 2011;28:305-307

http://www.cdjournal.org/view.php?article_id=386&journal_id=40

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Dental fear in children and adolescents: a comparison of forms of anxiety management practised by general and paediatric dentists

Authors: Diercke K et al

Summary: Email interviews of German dentists revealed that paediatric dentists utilised a wider spectrum of management techniques for anxious children than general dentists, including more psychotherapeutic interventions and anxiety assessment questionnaires. Furthermore, attendees of continuing education courses considered treatment of anxious children less difficult and employed psychotherapeutic interventions more often than their peers who did not attend such courses.

Prof Tak Chow: Prevention and reduction of dental anxiety/fear are important in promoting oral health. Dentists should aim at behavioural change of their patients through nonpharmacological fear-reducing methods. This survey was conducted on German dentists, and clinical practice could be different for other societies. Dentists should also be aware of cultural differences.

Reference: *Int J Paediatr Dent* 2012;22(1):60-7

<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-263X.2011.01158.x/full>

Oral manifestations of celiac disease: a clinical guide for dentists

Authors: Rashid M et al

Summary: This review of coeliac disease highlighted that dental health professionals need to be aware of the common oral manifestations associated with the condition (i.e. enamel defects, recurrent aphthous ulcers). Clinical guidelines for the management of patients suspected of having coeliac disease were detailed. The authors concluded that timely diagnosis and prevention of complications can be facilitated with careful questioning about other symptoms, family history, serological screening tests and appropriate referral.

Prof Lakshman Samaranayake: Celiac disease, often called celiac sprue is an autoimmune disease. Gluten, a component of wheat, barley and rye triggers an immune reaction in people with coeliac disease, damaging essentially the mucosa of the small intestine. Similarly the oral mucosa may be affected in these individuals leading to chronic recurrent aphthae which could be a tell tale sign of this systemic disease. Awareness of oral manifestations of celiac disease, well described in this review, may help dental practitioners in early detection of the disease in these individuals.

Reference: *J Can Dent Assoc* 2011;77:b39

<http://www.jcda.ca/article/b39/>

The effects of antiepileptic drugs on oral health

Authors: Cornacchio ALP et al

Summary: This systematic literature review of 15 papers on the effects of antiepileptic drugs on oral health found that reported rates of gingival hyperplasia among phenytoin recipients ranged from 16% to 94%, and use of this agent or carbamazepine was also associated with alveolar bone loss. Gingival hyperplasia was also associated with valproic acid, carbamazepine and phenobarbital use. No papers reporting the oral health effects of new-generation anti-epileptics met the inclusion criteria.

Prof Lakshman Samaranayake: The association between anti-epileptic drugs and oral disease, particularly phenytoin induced gingival hyperplasia is well known. This systematic review of the literature confirmed the latter association as well as the lesser known relationship between alveolar bone loss and carbamazepine therapy. It is regrettable that there are no good prospective trials in the literature on the effect of new generation of epileptic drugs and oral health. This is research worth pursuing.

Reference: *J Can Dent Assoc* 2011;71:b140

<http://www.jcda.ca/article/b140/>

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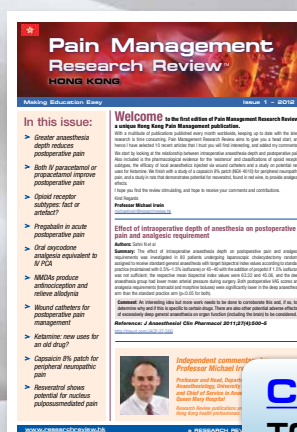
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