

Dental Review™

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Issue 7 - 2008

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Welcome to Dental Review Issue 7.

This month the range of articles is particularly diverse, with two papers sourced from the medical literature rather than the mainstream dental journals. The result is a range of items from palatal perforation to how sexual behaviour may influence oral cancers. There is coalface dentistry too, with two papers on primary molars, one on posts and others on periodontal disease and implantology.

This may be a concoction rather than a blend, but we hope you find the issue stimulating and we look forward to your comments.

Kind regards,
Nick

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Effects of mechanical cycling on the bonding of zirconia and fiber posts to human root dentin

Authors: Bottino MA et al

Summary: This in vitro study used 40 extracted single rooted teeth to investigate cyclic mechanical loading on the bond strength of a quartz fibre (flexible) and zirconia (rigid) post system to dentine. The posts were cemented using the same bonding agent and cement, and loaded at an angle of 45 degrees for two million cycles. They were then push-out tested. The more rigid zirconia posts showed a significant reduction in bond strength.

Comment: Should rigid root canal posts be consigned to history? There is considerable interest in using non-metallic fibre-reinforced posts to restore root treated teeth. Advertisements suggest fibre posts of various materials are beneficial as they have a similar elastic modulus to dentine; this might reduce the risk of root fracture. There is also some evidence to show their mode of failure compared to metal posts leaves a tooth which could be restored again, rather than extracted. But there will probably still be a difference in the elastic behaviour of the post and the more rigid resin cement used to hold it in the root. This research provides some ammunition to those advocating fibre post systems for restoring root filled teeth which have little coronal structure remaining. Once again, further clinical research is awaited.

Reference: Journal of Adhesive Dentistry 2007;9:327-331

<http://jad.quintessenz.de/index.php?doc=abstract&abstractID=12392>



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Diagnosis and management of the infraerupted primary molar

Authors: Noble J et al

Summary: An infraerupted tooth is defined as one which has failed to erupt to be in line with adjacent teeth in the vertical plane of occlusion. The causes remain controversial and may be due to ankylosis, absence of a permanent successor, impaction, trauma to Hertwig's epithelial root sheath and other factors. Its occurrence in siblings suggest there may also be a genetic aetiology.

Comment: This is a developmental problem often seen by general dentists and dental therapists, and appropriate planning is required or space and time are lost. Future treatment, which might involve orthodontics and/or implant placement, may be complicated by a lack of width and height of bone. Plaque retention and poor access for satisfactory oral hygiene may also lead to carious lesions in sites which are very difficult to treat. This review article presents a number of examples with advice on how to manage them.

Reference: British Dental Journal 2007;203:632-634

<http://lib.bioinfo.pl/pmid:18065981>



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The effects of orthognathic surgery on speech: a review

Authors: Hassan T et al

Summary: This paper reports a literature review carried out using two electronic databases which revealed 18 studies which fulfilled inclusion criteria. In 8 of the studies, the patient's speech either improved or was corrected by the surgery. The type of surgery and the degree of movement did not appear to affect speech.

Comment: The authors conclude that there is no clear evidence which directly relates malocclusions to speech discrepancies. They recommend further investigation, as firm conclusions could not be drawn on the effect of orthognathic surgery on speech.

Reference: Journal of Oral and Maxillofacial Surgery 2007;65:2536-2543

<http://lib.bioinfo.pl/pmid:18022481>

Incidence trends for human papillomavirus-related and unrelated oral squamous cell carcinomas in the United States

Authors: Chaturvedi AK et al

Summary: This study was to determine the impact of human papillomavirus (HPV) on the epidemiology of oral squamous cell carcinomas (OSCC). It used data from 9 surveillance registries from 1973 to 2004. HPV-related disease was diagnosed at a younger age (61.0 rather than 63.8 years), and the incidence increased significantly ($P < 0.001$) for HPV related lesions over the period studied. Patients with HPV-related lesions had better 2-year survival figures following radiation therapy.

Comment: This work from John Hopkins University suggests that the sexually transmitted HPV virus that causes cervical cancer in women may be poised to be a leading factor in oral cancers. The research indicates the virus now causes as many oral and throat cancers as do tobacco and alcohol. This may be because of an increase in oral sex practices and a decline in smoking. Recent improvements in the survival of OSCC patients treated with radiotherapy may be due in part to the changing aetiology of the disease.

Reference: Journal of Clinical Oncology 2008;26:612-619

<http://dx.doi.org/10.1200/JCO.2007.14.1713>

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Local adverse effects of amalgam restorations

Authors: McCullough MJ et al

Summary: This paper reviews adverse reactions to amalgam. It also provides a short account of its potential systemic effects, giving references to more extensive reviews on this topic. The authors state that in the vast majority of patients amalgam is an exceedingly safe restorative material with proven effectiveness and longevity.

Comment: The first two pages of this review provide a concise overview of the characteristics of amalgam (constituents, uses, longevity, corrosion, cytotoxicity) which is very easy to read. The rest of the paper concentrates on possible local adverse reactions such as lichenoid reactions and amalgam tattoos. Unsubstantiated local effects are also mentioned.

Reference: International Dental Journal 2008;58:3-9

<http://www.atypon-link.com/FDI/doi/abs/10.1680/indj.2008.58.1.3>

Tooth loss, dementia and neuropathy in the Nun Study

Authors: Stein PS et al

Summary: The Nun Study is a longitudinal study of ageing and Alzheimer's disease in a population of 678 Sisters. Included in this study were 144 nuns in Milwaukee. All participants had similar diet, living conditions and medical care. They were 75 to 98 years old, and the data were collected over 10 annual assessments. Autopsy results were available for 118 participants who died. The clinical implication is that edentulism or having very few teeth (1-9) may be predictors of dementia later in life.

Comment: Not surprisingly, cross-sectional and longitudinal studies show that individuals with dementia are more likely to have poor oral health. This paper considers the relationship from the other direction. The authors consider the association to be biologically plausible. Mechanisms include inflammatory mediators created in response to periodontal pathogens giving rise to neuropathy, and an increased risk of stroke and cerebrovascular problems in people with periodontal disease. Other researchers have also found antigens to oral bacteria more frequently in samples of brain tissue from subjects with Alzheimer's disease.

Reference: Journal of the American Dental Association 2007;138:1314-1322

<http://jada.ada.org/cgi/content/abstract/138/10/1314>

How do smoking, diabetes, and periodontitis affect outcomes of implant treatment?

Authors: Klokkevold PR et al

Summary: This is a systematic review to evaluate the literature on these three health problems and how they might influence dental implants. From more than 2,500 papers a list of 1814 was compiled for initial reviewing. Of these some 56 periodontitis, 47 smoking and 19 diabetes publications were thought relevant. Finally, 13, 19 and 4 papers respectively were considered high quality and considered in greater detail. Implant survival was significantly better in nonsmokers. Their survival in diabetics and non-diabetics (separate pooled estimates) were 92% and 93%. Four of the periodontal studies showed better implant survival in healthy mouths, but periodontitis did not significantly affect implant success, especially in the longer-term studies.

Comment: Implants are usually successful and predictable. The papers reviewed in this study involved a variety of implant types, and most used a 2-stage placement protocol. It was not possible to analyse the effects of these differences on implant survival and success. This paper gives us an insight into how massive the literature on implants has become, and how difficult it may be to tease answers to questions from amongst it.

Reference: International Journal of Oral and Maxillofacial Implants 2007;22:173-202

http://www.quintpub.com/journals/abstract.php3?iss2_id=225&article_id=2630

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Independent commentary by Associate Professor Nick Chandler of the Department of Oral Rehabilitation, University of Otago



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Clinical evaluation of partial- and full-mouth scaling in the treatment of chronic periodontitis.

Authors: Knöfler GU et al

Summary: In this study 20 patients with moderate chronic periodontitis were treated at one visit by full mouth scaling and a second group of 17 individuals treated over two visits with scaling and root planing. Pockets were irrigated with saline during the procedures. Patients treated in one visit rinsed with 0.2% chlorhexidine 12 hourly for one week afterwards. The two-visit group brushed their tongues and rinsed with chlorhexidine 12 hourly for two weeks. The probing depths, bleeding on probing and clinical attachment levels were compared after 12 months. The authors concluded that the 1 visit treatment was not superior to the more traditional two-visit method.

Comment: Both types of therapy had a similar positive influence on the periodontal condition at the premolar and molar sites, which had 4 to 6 mm probing depths initially. The authors comment that there are few studies available with long term results from non-surgical treatments of this type.

Reference: Journal of Periodontology 2007;78:2135-2142
<http://dx.doi.org/10.1902/jop.2007.070010>

Preformed metal crowns: views of a group of dental practitioners in North Wales

Authors: Chadwick BL et al

Summary: Eighty-five general dental practitioners were invited to participate in an interview about their approach to restorative care in children. The dentists who responded had been qualified for between three and 35 years and had graduated from nine different dental schools. They knew the advantages of preformed metal crowns for the treatment of primary molars, and realized that they were the most durable restorative option, but they did not use them.

Comment: Most of the participants had learnt about preformed metal crowns as undergraduates and felt confident that they could place them when they needed to. They cited lack of experience, cost and lack of time, the need for local analgesia and fear of hurting the patient among their reasons for non-use. A minimally interventive approach, without local analgesia and using glass ionomers was favoured by the group.

Reference: Primary Dental Care 2007;14:140-144.
<http://dx.doi.org/10.1308/135576107782144351>

Cocaine-induced palatal perforation

Authors: Lypka MA et al

Summary: This very brief report with dramatic photograph is about a healthy 25-year old man with a hole in the roof of his mouth which had resulted in nasal regurgitation of food for a year. He reported a 5-year period of cocaine use, and requested surgical correction of the defect. Examination revealed a perforation of the nasal septum and palate in the midline. After his consultation appointment he did not attend again. The report lists the infective and other causes of palatal perforations.

Comment: Cocaine is a powerful vasoconstrictor which can result in ischaemia, necrosis and ulceration. Local complications of nasal cocaine abuse include a variety of upper respiratory complaints and loss of the nasal septum. Regular readers of glossy women's magazines (not the writer!) may recall Daniella Westbrook (Samantha Mitchell from the TV soap Eastenders) who was among the first to bring cocaine-related changes to the nose to our attention. More recently, in October, British socialite Tara Parker-Tomlinson declared "my nose will drop off if I snort drugs again". Readers of Dental Review, you have been warned.....

Reference: New England Journal of Medicine 2007;357:19
<http://content.nejm.org/cgi/content/extract/357/19/1956>

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