

Dental Review™

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Issue 15 - 2009

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Welcome to the latest edition of Dental Review.

In this issue I have almost (but not quite) managed to miss out caries and periodontal disease completely, but I still think there is something for everyone. For those of advancing years, item 8 may be of special interest. If you were thinking of having an extraction, perhaps a rethink is necessary!

Kind regards,

Nick Chandler

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Lower lip mucocele treated with an erbium laser

Authors: Boj JR et al

Summary: Mucoceles are lesions of the minor salivary glands and mainly appear in children. Often they are on the lower lip and they may be recurrent or burst spontaneously. In this case report, an excisional biopsy of a mucocele was carried out using an Er,Cr:YSGG laser (Waterlase). The patient was 9 years old and treated under LA. A circular incision obtained a proper biopsy sample with the lesion removed in one piece. The laser was used at lower power and coagulation was achieved after lesion removal. No sutures were necessary.

Comment: Laser treatments often vaporise lesions. The erbium laser used in this case allowed rapid surgery, good visibility and effective haemostasis. Healing was rapid, pain free and without scarring.

Reference: *Pediatr Dent.* 2009;31:249-52.

<http://www.ingentaconnect.com/content/aapd/pd/2009/00000031/00000003/art00011>

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Fracture resistance of reattached incisor fragments with mini fibre-reinforced composite anchors

Authors: Fennis WMM et al

Summary: In some surveys of dental trauma over half the teeth injured suffer uncomplicated crown fractures. If the broken fragment is available it may be reattached with composite. In this study, 45 intact incisor crowns were cut through horizontally with a saw and mini fibre-reinforced anchors (3 mm long) made from glass fibres and a Bis-GMA matrix made as retention devices. One group of 'broken' teeth was prepared with mesial and distal anchor holes (diameter 1 mm, depth 1.5 mm) and the fragment with matching holes of slightly larger diameter. Anchors and composite across the gap formed the repair. Control groups had no anchors placed or their incisal edges repaired with composite. The mini anchors increased the fracture resistance of the reattached coronal part.

Comment: Reports on the success of attaching broken tooth fragments vary, with one study suggesting as many as 50% lose retention after 12–30 months. Methods for improving retention of the broken part are therefore worthwhile. In effect the fibre anchors act as metal dentine pins, which have no place in the restoration of anterior teeth. The illustrations are reminiscent of pictures of gold incisal edge inlays which featured pins as part of the casting- the pinlays. As young people have large pulps radiographs should be carefully studied before cutting the rather large anchor holes. Final thought – where did the researchers get hold of 45 upper central incisors, intact and of comparable size for the experiment? Rare beasts indeed.

Reference: *J Dent.* 2009;37:462-7.

<http://linkinghub.elsevier.com/retrieve/pii/S0300571209000451>



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Barodontalgia

Authors: Zadik Y

Summary: Barodontalgia is defined as an oral (dental or nondental) pain caused by change in barometric pressure. It became of special interest in the 1940s with the development of SCUBA, when divers reported 'tooth squeeze' and aircrews in World War II sometimes complained of pain. Pain on ascent is usually related to disease in a vital pulp, while descent pain often means pulp necrosis or a problem from one of the facial cavities.

Comment: This problem is rare but of general interest to practitioners. Good quality aircraft cabin pressurisation and better dental care mean it is rarely encountered today and barodontalgia is not seen often in the literature. Most teeth with this problem have a faulty restoration. Interestingly, recent restorative treatment has been reported as a major cause of barodontalgia, which suggests a 24- or 72-hour delay may be advisable before diving or a flight involving rapid ascents.

Reference: *J Endod.* 2009;35:481-5.

<http://linkinghub.elsevier.com/retrieve/pii/S009923990801159X>

Is it true that the radiation dose to which patients are exposed has decreased with modern radiographic films?

Authors: Alcaraz M et al

Summary: This survey is from Spain where dental radiological practice is subject to official reporting which includes film type, exposure times and the radiation doses administered for different dental radiographs. Some 10,171 reports covering 1996–2003 were collated. Most clinics used manual processing and 19% were digital. Ultraspeed films were the most common conventional films. There were no significant differences in dose between the different film types or the use of manual and automatic developing. There was a significantly lower dose with digital radiography.

Comment: The main factors in effective dose reduction are film speed and collimator size. It seems that even using the most sensitive modern films did not reduce dose. However, the very sensitive films were only used in 12% of the places inspected. The authors believe that part of the problem is a need for continuing education in this area, as practitioners are still using the materials and techniques they used during their training.

Reference: *Dentomaxillofac Radiol.* 2009;38:92-7.

<http://dmfr.birjournals.org/cgi/content/abstract/38/2/92>



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




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Penetration of amalgam constituents into dentine

Authors: Scholtanus JD et al

Summary: What makes teeth with amalgams in them go dark? This review reveals that Sn, followed by Zn and Cu are consistently found in dentine under amalgam and in corrosion and marginal seal products. Mercury is not found in dentine. The darkened dentine under amalgams is demineralised, and so is a different substrate than sound dentine.

Comment: As early as 1881 black staining was reported in apparently previously soft dentine under amalgam, and this 'fossilisation' was thought to be from Ag or Hg uptake. Amalgam restorations are often replaced by composite, and it was 2007 before it was shown that bond strengths to the dark dentine after amalgam removal are lower than to normal dentine. This makes the stained tissue similar in this regard to caries-affected and caries-infected dentine.

Reference: *J Dent.* 2009;37:366-373.

<http://linkinghub.elsevier.com/retrieve/pii/S0300571209000189>

Classification and prognosis evaluation of individual teeth: A comprehensive approach

Authors: Samet N et al

Summary: Prognosis may be defined as 'a prediction of the probable course and outcome of a disease, and the likelihood of recovery from a disease'. The authors propose a system based on tooth condition and patient factors to assess the condition of teeth and to provide a relative prognostic value (good, fair, questionable, compromised, nonsalvageable) which is clinically-oriented and evidence-based.

Comment: The literature is full of information about procedures, for example comparisons of one restorative material against another in carefully prepared cavities. But this paper looks at teeth, and these are attached to a patient and into the mix go wear, erosion, abfraction and other concerns. Periodontal, restorative, endodontic and occlusal plane information are of course considered too. The authors consider their system to be easy to use. There is a clear need to apply their proposed scheme and see how well it works in clinical trials both in institutions and general practice.

Reference: *Quintessence Int.* 2009;40:377-87.

<http://tinyurl.com/lfa38l>

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Laboratory-made space maintainers: A 7-year retrospective study from private pediatric dental practice

Authors: Fathian M et al

Summary: This study examined survival times and problems found with laboratory-made space maintainers placed by the same dentist over 7 years. Some 235 patients were involved wearing 323 appliances. Most failures were from cement loss and 12% of the retainers were totally lost. Sixty-three percent lasted their anticipated life or were still in use.

Comment: Early loss of a primary tooth may lead to loss of space, crowding and shifting of the midline. This is the first report of this type from a private paediatric dentist. The successful appliances had a mean survival time of 30 months, better than previous reports from private practices and universities. The authors were disappointed in the number of failures from cement loss, considering poor band fit and sticky foods to be the problem.

Reference: *Pediatr Dent.* 2007; 29:500-6.

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The effect of tooth loss on body balance control among community-dwelling elderly persons

Authors: Yoshida M et al

Summary: Over one-third of individuals aged 65 or over fall each year and for half of these people falls are recurrent. One in 10 of these falls may result in a fractured hip. This study considered some dentate and edentulous elderly people. The test group (35 participants) had a full denture in one or both arches while the matched control group retained all their dentition (natural or with some fixed prostheses). Subjects underwent physical fitness assessments and stabilometer tests. Sway and energy consumed for postural control (standing with eyes closed) and several other factors were all significantly higher in the test group.

Comment: My first thought on reading the title was what will they think of next? Nevertheless, there is a growing body of literature on occlusion, head position, edentulism and posture, much of it from Japan. The authors of this study conclude that tooth loss is a risk factor for postural instability, and that periodontal ligament receptors may play a role. How might this relate to a patient with a dentition which is entirely implant-retained?

Reference: Int J Prosthodont. 2009;22:136-9.

http://tinyurl.com/mz2tqd

Evaluating two techniques on removal of fractured rotary nickel-titanium instruments from root canals: an in vitro study

Authors: Alomairy KH

Summary: Rotary NiTi endodontic instruments fail due to torsional and cyclic flexural fracture, with the incidence in the range 0.4 to 4.6%. This study looked at using ultrasound or the instrument removal system (iRS, Dentsply) to remove size 25 Profile .06 instruments from 30 extracted molars. Canal curvatures were measured and the teeth randomly allocated. The overall success rate was 70%, with no significant difference between the removal methods. The removal times were of the order of 40 to 55 minutes under these ideal conditions.

Comment: Not surprisingly, removal was more successful in less curved canals. The authors advise other treatment options be considered after an hour has been spent on the task, because of operator fatigue and the high risk of perforation.

Reference: J Endod. 2009;35:559-562.

http://linkinghub.elsevier.com/retrieve/pii/S0099239909000107

Sinus membrane lift using a water balloon followed by bone grafting and implant placement: a 28-case report

Authors: Hu X et al

Summary: Lifting the maxillary sinus allows the placement of implants in edentulous and pneumatized maxillae. In this report, 28 patients had full thickness flaps raised and implant sites prepared allowing observation of the sinus membrane. A small balloon was then inserted and inflated to elevate the sinus floor (by about 10 mm) and then removed. The mean inflated balloon volume was 0.67 mL. Bio-Oss and autologous platelet-rich fibrin was then placed under the elevated membrane and the implants placed.

Comment: This seems to be a minimally invasive technique compared to using an osteotome, which provides less average bone height. The results suggested very little discomfort and low complication rates, but two procedures were abandoned due to perforation. The procedures were performed by 'random clinicians'; perhaps these people are the answer to workforce problems!

Reference: Int J Prosthodont. 2009;22:243-7.

http://www.ncbi.nlm.nih.gov/pubmed/19548405?dopt=Abstract

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