



Dental Review™

Making Education Easy

Issue 32 - 2012

In this issue:

- > *Vertical root fractures*
- > *Periodontitis and erections*
- > *Eagle's syndrome*
- > *Primary tooth trauma*
- > *Third molars and fractures*
- > *Incisor bone thickness*
- > *Victim identification*
- > *Prospective endodontics study*
- > *Natural tooth provisional*
- > *Gastric reflux tooth surface loss*

Welcome to Issue 32 of *Dental Review*. I wasn't sure where to put the article about periodontal disease in the issue (because it is a sensitive issue) but I hope most readers will progress beyond item number two and enjoy reading the remainder of the abstracts. It just goes to show how fertile the whole field of dental research can be, especially for those with periodontal inclinations. And research does not have to be so invasive; the final item on erosion shows just how much new information can be gained from everyday impressions and models when scanners and computers are put to use.

Best wishes,

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Vertical root fractures in crowned teeth: A report of 32 cases

Authors: Schwarz S et al

Summary: The mode of fracture of 32 root-filled teeth was investigated; all had ferrules of sound coronal structure at least 2 mm high and had been crowned to prevent fracture and for other reasons. The mean patient age was 60 years and the mean time from endodontic treatment to fracture diagnosis 7.8 years. The extracted teeth were photographed, radiographed and examined using a scanning electron microscope. Most fractures began in the apical region and propagated coronally.

Comment: The teeth in the project had received optimal treatment and none had posts. The report does not answer the question about how frequently VRFs appear, and it is likely that many troublesome teeth are removed without an accurate diagnosis of VRF. Some of the cracks in the study could only be seen with transillumination.

Reference: *Quintessence International* 2012;43:37-43

<http://lib.bioinfo.pl/paper:22259807>

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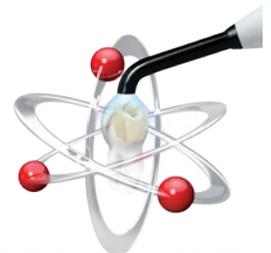
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Association between chronic periodontitis and vasculogenic erectile dysfunction

Authors: Sharma A et al

Summary: Chronic periodontitis and erectile dysfunction (ED) have common risk factors such as diabetes, smoking and cardiac disease. This study involved 70 ED sufferers who completed a questionnaire and underwent penile ultrasound. Periodontal probing depth and attachment levels were recorded. There was an association between periodontal disease and vasculogenic ED, but it did not reach statistical significance.

Comment: Once again the periodontal researchers strike fear in a large segment of the population, and this is the second study on this topic. Well done to the volunteers who had their penile blood flow measured with colour Doppler ultrasound; they also suffered the indignity of an intracavernous injection as part of the investigation (look it up). I can almost hear half the readership wincing, then reaching for toothbrushes and mouthrinses. The good – or is it bad? – news is that a larger scale study is warranted.

Reference: *Journal of Periodontology* 2011;82:1665-1669

<http://www.joponline.org/doi/abs/10.1902/jop.2011.110049>

Eagle's syndrome – A case report and review of the literature

Authors: Khandelwal S et al

Summary: Eagle's syndrome is a cluster of symptoms related to an abnormally long styloid process or calcified stylohyoid ligament. Patients have throat or neck pain, swallowing difficulty or facial pain, and therefore present to dentists and a number of medical disciplines. The patient described had neck pain when looking up or to the left and a bony projection in the right submandibular region. The enlarged styloid process was removed by an extra-oral approach.

Comment: For some reason this is one of the few syndromes dentists can remember. Elongated styloid processes are often seen on panoramic radiographs but do not confirm the diagnosis or correlate with the pain that sufferers report. The syndrome was first described in 1937. The paper explains the mechanisms for the pain involved and describes a sudden death resulting from compression of both carotid sinuses.

Reference: *The Saudi Dental Journal* 2011;23:211-215

<http://www.saudidentaljournal.com/article/PIIS1013905210000945/abstract>

Pulp canal obliteration following trauma to primary incisors: a 9-year clinical study

Authors: Santos BZ et al

Summary: The occurrence of pulp canal obliteration (PCO) in primary maxillary central incisors was investigated in a retrospective study of radiographs of 112 teeth over 9 years. About 54% of the teeth underwent PCO, most within a year of trauma. The change was strongly related to a yellow colour change, but not related to pulp necrosis.

Comment: The PCO change was not related to age, type of trauma, or further incidents of trauma. There is a small risk of pulp death but this was not a problem in the 60 teeth in this study.

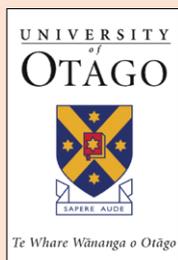
Reference: *Pediatric Dentistry* 2011;33:399-402

<http://tinyurl.com/7w9sntq>



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Independent commentary by Associate Professor Nick Chandler
of the Department of Oral Rehabilitation,
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Iatrogenic mandibular fractures following removal of impacted third molars: an analysis of 130 cases

Authors: Ethunandan M et al

Summary: Mandibular fracture is a rare but serious complication of third molar removal. The authors analysed 130 cases from the literature from 1970–2011 and others from their own unit looking for risk factors. The male:female ratio was 2.4:1, with postoperative fractures also more common in males. Postoperative fractures often happened two or three weeks after tooth removal, this being the osteoclastic phase of bone healing. Fractures were more common with mesioangular impactions. Age was a predictor, with a peak in the 36–60-year group.

Comment: Postoperative fractures occurred more on the right side but intraoperative fractures were commoner on the left; the authors were unable to explain this. The review was unable to show a direct relationship between tooth angulation and risk of fracture.

Reference: *British Dental Journal* 2012;212:179-184

<http://www.nature.com/bdj/journal/v212/n4/full/sj.bdj.2012.135.html>

The thickness of facial alveolar bone overlying healthy maxillary anterior teeth

Authors: Ghassemian M et al

Summary: This study used CT images to measure the distance between the cemento-enamel junction (CEJ) and alveolar bone crest and the thickness of facial bone at points 1 and 5 mm from the crest for the six maxillary anterior teeth. Some 66 scans were measured by two calibrated observers viewing the same slices at the same magnification. For the incisors the CEJ-crest distance was 2.7 mm, and it was significantly larger in smokers. It was also significantly larger in patients aged over 50 compared to those 30 or younger. The mean bone thickness 3 mm from the CEJ for the central incisors was slightly over 1.4 mm.

Comment: The bone is very thin in this region, with fenestrations and dehiscences common. Treatment decisions on implant placement are crucial. The results in this study are very similar to measurements made from dry skulls, showing the reliability of the CT scans.

Reference: *Journal of Periodontology* 2012;83:187-197

<http://www.joonline.org/doi/abs/10.1902/jop.2011.110172?journalCode=jop>

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The crash of Colgan Air flight 3407: Advanced techniques in victim identification

Authors: Bush M, Miller R

Summary: At high temperatures teeth dislodge from the jaws and enamel separates from dentine leaving fragile fragments. Composites and root canal sealers can survive very high temperatures and even microscopic amounts can be identified by brand using techniques such as scanning electron microscopy with energy dispersive X-ray spectroscopy (SEMS/EDS). In this accident three victims had limited dental remains. Two were seated one row apart and both had tooth 46 root filled and both were missing tooth 48. SEMS/EDS revealed that one first molar contained AH26 root canal sealer as stated in the dentist's notes. For the other victim and the third individual the analysis identified the brand and manufacturers of the composites used in their restorations and cores.

Comment: Readers may have seen this disaster as a "Mayday" documentary on Prime television on April 1. Brought down by ice in a suburb near Buffalo, N.Y., the wreckage burned for 11 hours. This paper introduces the importance of recording the brand name of materials used in the patient's clinical notes as these new technologies become available to help with identification.

Reference: *Journal of the American Dental Association* 2011;142:1352-1356

<http://jada.ada.org/content/142/12/1352.abstract>

A prospective cohort study of endodontic treatments of 1,369 root canals: results after 5 years

Authors: Ricucci D et al

Summary: This prospective study included 470 patients with 816 treated teeth and 1,369 root canals to evaluate. Calculated by canals the overall success was 90.3%. It found that teeth with infected pulp spaces should be treated over at least two sessions with an effective dressing for optimal success. Excess canal filling decreased success, and there were significant differences between the seven brands of sealer used in the study.

Comment: I could fill a whole issue of Dental Review with data from this lengthy paper; the Conclusions alone are going to cause much debate. Among these were that the coronal restoration did not affect outcome, and neither did posts. More evidence here against single-visit treatment. Successful outcomes increased with patient age, which is in contrast to earlier studies – one would imagine that cleaning and disinfecting small canals and the decreasing immunity of the older patient could have the opposite effect.

Reference: *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, Endodontics* 2011;112:825-842

<http://www.sciencedirect.com/science/article/pii/S1079210411005348>

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Natural teeth used as provisionals in immediate implant loading in the maxilla: a case report

Authors: Miranda ME, Olivieri KA

Summary: The patient presented with mobile maxillary central incisors as a result of root resorption, and implant placement immediately after extraction was planned. Two temporary cylinders were adjusted to make the provisional teeth. The natural tooth crowns were shaped and attached to the cylinders with resin and screwed to the implants through palatal orifices. Four months later they were removed and impressions taken to make metal-free prosthetic crowns.

Comment: Potential here to maintain aesthetics and other factors critical in this part of the mouth, and perhaps the opportunity to take some acceptable 'shortcuts' when presented with a patient like the one in this report. She was 52 years old with perfect periodontal health and no medical problems.

Reference: *Implant Dentistry* 2012;21:25-27.

<http://tinyurl.com/cdr4wdl>

Quantitative analysis of tooth surface loss associated with gastroesophageal reflux disease: a longitudinal clinical study

Authors: Tantbirojn D et al

Summary: Dental erosion is a form of tooth surface loss resulting from a chemical process of acid dissolution not involving acids of bacterial origin. The authors carried out a 6-month longitudinal clinical study of 12 patients with gastroesophageal reflux disease (GERD) and 6 control subjects, using optical scans of casts made from polysiloxane impressions. Tooth loss was recorded as volume loss in cubic millimetres to an accuracy of 0.06 mm³. The mean volume loss per participant was significantly higher in the GERD group (1.78 mm³ GERD, 0.42 mm³ control).

Comment: Despite the small number of subjects this indirect analysis method was so powerful it was possible to differentiate between the groups in this short time interval. Tooth surface loss in the GERD subjects could progress to depths of tens of microns in 6 months, and this doubled if combined with attrition. This is some of the first quantitative information about the progression of erosive tooth wear.

Reference: *Journal of the American Dental Association* 2012;143:278-285

<http://jada.ada.org/content/143/3/278.long>

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