

Other journals in brief

A selection of abstracts of clinically relevant papers from other journals.

The abstracts on this page have been chosen and edited by John R. Radford.

VERTICAL ROOT FRACTURES

Effects of new adhesive resin root canal filling materials on vertical root fractures

Hanada T, Quevedo CGA *et al.* *Aust Endod J* 2009; DOI:10.1111/j.1747-4477.2009.00189.x

Adhesive systems, used to fill root canals, do not prevent vertical root fractures.

Fifty-six maxillary central incisor teeth were apportioned to one of eight groups. The root canals of these teeth were instrumented to either a master apical file (MAF) size 40 or size 80. These were then obturated using a conventional method or one of two adhesive systems. The first adhesive system (RC Sealer system: 4-META/MMA-TBB) was used with either a single gutta percha point or a lateral condensation method, and the other (Epiphany™ Sealer: dual-curable resin sealer) with a thermoplastic synthetic polymer-based cone (Resilon™). Predictably, those teeth instrumented to MAF size 80 had a significantly lower fracture load than those prepared to size 40. Not only did those teeth filled with the adhesive systems not prevent vertical root fractures but the Epiphany™ Sealer with Resilon™ had significantly 'lower fracture loads' when compared with the other methods.

DOI: 10.1038/sj.bdj.2010.20

ENDODONTIC FILE FRACTURE

Instrument fracture: mechanisms, removal of fragments, and clinical outcomes

Cheung GSP. *Endod Topics* 2007; 16: 1–26

'Retrieval becomes almost impossible when the breakage... cannot be visualized under the operating microscope.'

This narrative review, states that the 'combined action of torsional (shear) stress and cyclic loading (ie fatigue...), have been implicated in the fracture of nickel-titanium (NiTi) rotary files. In order to minimise such fracture, a 'glide path' (preferably to size 20) should be created to the working-length before using NiTi instruments. 'Incorporating a pecking motion' seems to reduce fatigue failure. Surprisingly there 'is some controversy on the effect of rotational speed on the fatigue fracture of NiTi instruments'. The prognosis for a successful outcome would appear to be more related to the cleanliness of the root canal system than the presence of a broken fragment. Numerous methods are described in order to remove fractured instruments such as the creation of a 'staging platform' before ultrasonic guttering or the author's preferred method of using endosonic files.

DOI: 10.1038/sj.bdj.2010.21

RAPID MAXILLARY EXPANSION

Long-term effects of orthodontic therapy on the maxillary dental arch and nasal cavity

De Felipe NLO, Bhushan N *et al.* *Am J Orthod Dentofacial Orthop* 2009; 136: 490.e1–490.e8

Rapid maxillary expansion (RME) may, with other factors, significantly decrease nasal airway resistance.

This study, by including a control group and increasing the retention period to 42 months, addresses some of the shortcomings of earlier work carried out by the same investigators. The patients examined were those treated in the earlier study. After RME, the nasal cavities in 25 test and 25 control patients were measured using morphometric assessment and acoustic rhinometry. In those treated with RME, the palatal area increased significantly and nasal airway resistance decreased compared with the control group. However, this was not mirrored by an increase in inter-molar dimension. The investigators conclude that 'RME is a powerful tool to normalize most of the variables' that they studied. However, they concede that there were still some remaining methodological flaws with this present study.

DOI: 10.1038/sj.bdj.2010.22

LOW BIRTH-WEIGHT CHILDREN

Contribution of periodontal disease in pregnant women as a risk factor for low birth weight

Cruz SS, Costa MN *et al.* *Community Dent Oral Epidemiol* 2009; 37: 527–533

There would appear to be a positive association between mothers with periodontal disease and low birth-weight children.

In this retrospective case-control study, logistic regression analysis was used to explore associations between mothers with periodontitis and low birth-weight children. Associations with other putative factors were also studied. Periodontitis was identified using established criteria, although this was diagnosed after the birth of the child. The case group comprised 164 mothers and their children born with a weight of <2,500 g. The control group comprised 384 mothers bearing children of >2,500 g. After adjusting for confounders, there was a positive association between mothers with periodontal disease and their children with low birth weight. The authors conclude that this investigation adds to the 'growing number of observational studies with results...strengthening the consistency of the association' between mothers with periodontal disease and low birth-weight children.

DOI: 10.1038/sj.bdj.2010.23