

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.

SHAPING OF ENDODONTICS

Endodontic triad for success. The role of minimally invasive technology

Ruddle CJ. *dentalCEToday.com* <https://www.dentalcetoday.com>

No data comparing clinical outcomes.

The author argues that the principles underpinning minimal invasive endodontics ('a systematic respect for the original tissue') and conventional endodontics (shaping the canal such that it can hold an 'effective reservoir of reagent that, upon activation, can be potentially exchanged into all aspects of the root canal system'), are not necessarily compatible. Although a proponent of conventional endodontics, the author champions progressively tapered files (for example ProTaper Gold®) in that they facilitate minimal canal preparation. In addition, he extolls the virtues of irrigation using the EndoActivator® system that can be used with small (#15/.02) tips to transmit the sonic energy. But there is no method to predictably fill essentially a noninstrumented canal. Disparaging, the author cites a CEO of a company that has developed noninstrumentation 3-D disinfection technology, who said: 'get anything you can to length that will produce a white line on a radiograph and the insurance company will pay.' The author has declared a financial interest in DENTSPLY Tulsa Dental Specialties that market both ProTaper Gold® and the EndoActivator® system.

DOI: 10.1038/sj.bdj.2015.844

POTENTIAL FOR DAMAGE, THAT IS REAL

Remaining root dentin thickness in mesiobuccal canals of maxillary first molars after attempted removal of broken instrument fragments

Gao Y, Shen Y *et al.* *Aust Endod J* 2015 doi:10.1111/aej.12103

Apart from a risk of perforation, root strength is compromised.

This was a 'virtual' experiment and of elegant design. The investigators used micro-computed tomography to measure the thickness of remaining dentine, including that area adjacent to the 'danger zone', following the removal of a 'virtual' fractured file in each of 37 extracted and then scanned maxillary first molar teeth. The 'danger zone' is the distal concavity in the root between the first and second mesiobuccal canals. The method that was used to remove the 'virtual' fragment comprised creating a staging platform with a Gates Glidden bur and then using ultrasonic tips to trephine around and expose the coronal 1.5 mm of the fragment. If a size 25 file was fractured at a depth of 5 mm from the canal orifice, the thickness of dentine at the 'danger zone' was reduced from some 0.7 mm before recovery to 0.4 mm (368 ± 161 µm). It has been estimated by others, that when the thickness of dentine is less than 300 µm, condensation forces generated by obturation may exceed the structural integrity of the root dentine.

DOI: 10.1038/sj.bdj.2015.845

'VIOLATION' OF ALARA?

Justification and good practice in using handheld portable dental X-ray equipment: a position paper prepared by the European Academy of DentoMaxilloFacial Radiology (EADMFR)

Berkhout WE, Suomalainen A *et al.* *Dentomaxillofac Radiol* 2015; **44**: 20140343

'...the use of handheld portable X-ray devices will be very exceptional, and for justified situations only.'

What is the role of handheld portable X-ray devices in the dental surgery? They were devised for use in a military setting and are battery-powered, but can be mounted on a tripod and operated from a distance. In particular the newer devices, have a lower output dose rate than conventional wall-mounted direct current devices. This expert group state that handheld portable X-ray devices should be used only '...where it is impractical or impossible to transfer the patient to a fixed mounted X-ray installation'; examples would include patients who are immobile and those persons held in detention centres. Such devices also have a role in the field of forensic odontology. Assuming the strict criteria for their use is met, the same precautions must be adopted as those for conventional devices. In addition, quality assurance must be in place. Justification for the use of handheld portable X-ray devices must be entered in the clinical notes of each patient.

DOI: 10.1038/sj.bdj.2015.846

NONMALEFICENCE...BENEFICENCE

Economic and health implications of routine CBCT examination before surgical removal of the mandibular third molar in the Danish population

Petersen LB, Olsen KR *et al.* *Dentomaxillofac Radiol* 2015; **44**: 20140406.

'...incitements for implementing new technology will tend to follow market rules and not entirely scientific or ethical standards.'

What is the excess cancer incidence, and the financial costs associated with the routine use of CBCT before surgical removal of wisdom teeth? This study was carried out in Denmark. The investigators interrogated data from 17 selected clinics from 2008 to 2014. Those extractions carried out by specialists or in universities were excluded. During one year, 1,369 mandibular third molar teeth were removed surgically from a total of 95,789 patients. Coronectomies comprised 2.9% of these included surgical procedures. Extrapolating these numbers for the whole country, it was estimated that 36,882 wisdom teeth were extracted each year. The estimated additional cancer incidence in Denmark of carrying out routine CBCT before surgical removal of wisdom teeth was 0.46 per annum. The estimated direct fiscal cost of carrying out this diagnostic procedure was €6.6 million per annum. This can be compared with the cost of €1.8 million for taking panoramic radiographs. The cost of each diagnostic procedure was made by this group in an earlier published study.

DOI: 10.1038/sj.bdj.2015.847