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# Insights into the August 2020 Issue of the JOE



Welcome to the August 2020 issue of the JOE. Here, we share some of our favorite articles that are published in this issue of the *Journal*. We hope you look forward to reading these and other articles in the JOE.

## FEATURED ARTICLES FROM THIS ISSUE

The article by Russell<sup>1</sup> entitled “Development of a Device to Reduce Oropharyngeal Aerosol Transmission” describes an interesting approach to create an engineering infection control for endodontic offices. It describes in detail the creation of a clear horizontal polycarbonate shield that attaches to the dental operating microscope with an attached high volume air evacuation system that could remove some of the aerosols created during the delivery of endodontic procedures. The details of construction of this shield and the materials needed are listed and should allow for the construction of an essentially similar device in any dental operatory with a microscope. The shield should catch some of the spatter that is arising from the working oral environment while also evacuating some of the potentially infected aerosols generated and venting them to the outdoor environment. Airflow was measured and varied from the highest airflow at the opening to the suction vent (498 ft/min) to a lower flow at the level of the oropharynx (3.9 ft/min), where, presumably, most of the potentially infected aerosols are generated. The authors state that this setup does not replace a negative pressure airborne infection isolation room such as the ones the Centers for Disease Control and Prevention recommend for treatment of patients with active coronavirus disease 2019, and the airflow at the level of the oropharynx may not be sufficient to establish a significant reduction in aerosol transmission. Although the authors call for more research on these kinds of barriers, an engineering control such as this one or something similar may confer some protection when treating asymptomatic carriers of this and other airborne diseases. Could this be the new normal?

Effective chemomechanical preparation using chemical substances can improve the clinical outcome and long-term success of endodontic treatment. In this issue of JOE, Ruksakiet and colleagues<sup>2</sup> present a meta-analysis of 8 eligible randomized clinical

trials (out of a pool of 2110 studies searched until March 2020) that compared the antimicrobial efficacy of chlorhexidine and sodium hypochlorite. Overall, they found no significant differences in the antimicrobial efficacy between these 2 irrigants (measured as incidence of samples with positive bacterial growth as well as mean bacterial number changes). It should be acknowledged that these outcomes are not necessarily clinically relevant, and only one eligible trial reported the success rate based on radiographic outcome. Furthermore, the overall quality of evidence is very low. Additional research on this important question is warranted.

The GentleWave Technology (Sonendo, Inc, Laguna Hills, CA) has received much attention in Endodontics but limited objective research. In this single-blinded randomized controlled study by Grigsby and associates<sup>3</sup>, the investigators sought to compare postoperative pain after GentleWave irrigation or conventional side-vented needle irrigation and ultrasonic activation. The results were analyzed in 36 of 44 randomized participants who returned their postoperative pain scores. Although participants randomized to the GentleWave treatment arm reported significantly less preoperative pain than the conventional irrigation group, the results revealed that there were no significant differences between the 2 modalities of irrigation in incidence or intensity of pain for up to a week postoperatively, with both groups displaying a reduction in pain over time.

External cervical resorption (ECR) is a dynamic, progressive inflammatory process of external origin that involves the cervical attachment apparatus of the tooth. The treatment planning/prognosis of ECR are largely based on the subjective assessments made from clinical examination/investigations. In this respect, the diagnostic value of cone-beam computed tomography (CBCT) imaging has been highlighted previously. In this issue of the JOE, Matny and colleagues<sup>4</sup> assessed the volumes of ECR cases while correlating them to the Heithersay classification system, treatment decision, and prognosis, as determined by 3 calibrated, independent evaluators. A total of 168 ECR cases with corresponding periapical radiographs and CBCT imaging were included in this study. It was concluded that the volumetric quantification of ECR best correlated with the classification and prognosis assigned by the

independent examiners using CBCT evaluation. The greatest variation in agreement was on the decision to surgically repair the ECR or not. Yet, examiners agreed more uniformly on not to treat when the resorptive port of entry was found on either the lingual or proximal surfaces of the tooth. It was suggested that future investigations on automated volumetric quantification of ECR would aid in unbiased chairside treatment planning decisions.

The optimal management of postendodontic pain remains an active area of research. In this issue of the JOE, Al-Rawhani and colleagues<sup>5</sup> conducted a randomized controlled double-blinded clinical trial to evaluate the analgesic effect of premedication with a single dose of diclofenac potassium (50 mg) or placebo on 68 participants with moderate to severe pain after single visit nonsurgical root canal therapy. They found that premedication with diclofenac provided significantly better analgesia than placebo treatment, and that it lasted up to 48 hours. Although the analgesia seen with diclofenac is expected, the results also highlight the excellent efficacy of root canal therapy in reducing pain in patients with symptomatic irreversible pulpitis, because all patients, including patients in the placebo group, had significant pain reduction within 48 hours. Larger trials comparing different dose regimen with placebo, but also with ibuprofen as the prototypical over-the-counter nonsteroidal anti-inflammatory drug (NSAID), are warranted to further justify the use of a prescription NSAID such as diclofenac.

Vertical root fractures present diagnostic and treatment challenges to the clinician. Choosing the most effective modality for detecting a fracture has been the focus of many studies. Here, Dias and colleagues<sup>6</sup> present a study designed to evaluate the accuracy of small volume CBCT in the detection of vertical root fractures compared with conventional periapical radiographs. Eighty-five teeth with suspected root fractures were included in the study. Small volume CBCT and conventional radiographs were exposed on each case and evaluated independently by 2 observers. The teeth were then subjected to exploratory surgery (reference standard) to confirm the presence of a fracture. The authors found that even though CBCT was more sensitive and accurate for diagnosis of vertical root fractures than

periapical radiographs, the accuracy was still relatively poor (64%). This was particularly true in multirrooted teeth with posts. This article supports the utility of CBCT in detecting vertical root fractures but emphasizes the importance of the inclusion of clinical data for a sound diagnosis.

In the article “Can Irrigant Agitation Lead to the Formation of a Smear Layer?,” Kanaan and colleagues<sup>7</sup> challenged whether smear layers will be inadvertently created during agitation of irrigating solutions at the final irrigation step. They reported that the use of ultrasonic activation or agitation devices such as the EasyClean (Easy Dental Equipment, Belo Horizonte, MG, Brazil) or the EDDY irrigating systems (VDW GmbH, Munich, Germany) all resulted in the generation of smear layers at the apical part of the canal wall when 2.5% NaOCl and 17% EDTA were used as root canal irrigants, even if no previous instrumentation procedure was performed on the root canal walls.

In this issue of the JOE, Ricucci and colleagues<sup>8</sup> report on an interesting case on the management of a large apical periodontitis lesion that showed clinical and radiographic features that led to a misdiagnosis of a nasopalatine duct cyst with a secondary infection. After histopathology, the final diagnosis was a periapical cyst of endodontic origin. This article emphasizes the clinical importance of histopathology to define the correct diagnosis of a periapical cyst.

We hope you enjoy this issue of your *Journal of Endodontics*.

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