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Lingual orthodontics: an illustrated review with the incognito fully customised appliance

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An *in vitro* scanning electron microscopic study comparing the efficacy of passive ultrasonic and syringe irrigation methods using sodium hypochlorite in removal of debris from the root canal system

Précis

Passive ultrasonic irrigation (PUI) with more biocompatible 1% sodium hypochlorite (NaOCl) was evaluated and compared to syringe irrigation with 2.5% NaOCl, and it was concluded that PUI with 1% NaOCl is more effective in removal of debris from the root canal system than syringe irrigation with a higher concentration of 2.5% NaOCl.

Abstract

Objective: To evaluate and compare the cleaning ability of the more biocompatible 1% sodium hypochlorite (NaOCl) with passive ultrasonic irrigation (PUI) to that of 2.5% NaOCl with syringe method irrigation.

Material and methodology: Thirty-six extracted permanent single-rooted mandibular premolar teeth were decoronated at the cemento-enamel junction and divided randomly into four groups (nine in each group) after biomechanical preparation. Group 1: Control group – normal saline was used as an irrigant solution. Group 2: PUI with 1% NaOCl. Group 3: syringe irrigation with 1% NaOCl. Group 4: syringe irrigation with 2.5% NaOCl. Roots were split and canal walls were examined at the apical third at 1,000X magnification in a scanning electron microscope (SEM). Debris scores were recorded using a scoring scale. Means were tested for significance using nonparametric Mann–Whitney U and chi-square tests.

Results: Group 2 showed the lowest mean score of 0.33 compared to the other groups and Group 1 had the highest mean score. Significant difference was found when PUI with 1% NaOCl (Group 2) was done compared to syringe irrigation with 1% NaOCl (Group 3, p=0.001), and syringe irrigation with 2.5% NaOCl (Group 4, p=0.002).

Conclusion: PUI with 1% NaOCl is more effective in removal of debris from the root canal system than syringe irrigation with a higher concentration of 2.5% NaOCl.

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Radiographic evaluation of the technical quality of undergraduate endodontic 'competence' cases in the Dublin Dental University Hospital: an audit

Précis: An audit examining the technical quality of undergraduate endodontic 'competence' cases in the Dublin Dental University Hospital revealed favourable results compared to benchmark studies, but identified areas for improving quality.

Abstract

Purpose: The aim of this audit was to evaluate the technical quality of undergraduate *de novo* endodontic competence cases in the Dublin Dental University Hospital (DDUH) compared to European standards.[1,2]

Materials and methods: A radiographic analysis of the number of canals in student 'competence' cases (completed 2009-2010) that met the accepted technical criteria for an ideal root canal treatment was carried out. The benchmark was formulated using accepted European guidelines. Several technical factors were analysed including the apical extent of obturation (within 2mm of radiographic apex), the presence of voids, technical errors and the presence of untreated roots. One hundred and nineteen root canals were initially selected in 78 teeth; however, five teeth were excluded from analysis as the postoperative radiograph was either missing or not diagnostic.

Results: Single-rooted teeth demonstrated voids in 36% of root fillings, and 69% were filled to within 2mm of the apex and there were no detectable technical deficiencies. Multi-rooted teeth demonstrated voids in 38% of root fillings; 60% were filled to within 2mm and 94% of canals demonstrated no deviation from the original canal. Combined results demonstrated that 49% of all the single-rooted teeth and 17% of all the multi-rooted teeth were acceptable within the technical parameters identified in the guidelines.

Conclusions: Analysis of individual technical criteria revealed areas in which the quality was acceptable and others in which it could be improved. Although the overall results appeared poor, they were similar to previous studies of the technical quality of undergraduate root canal treatment.[2-5]

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