Objectives

To quantify and determine the extrusion of sodium hypochlorite for different final irrigation systems used in semi-closed environment, simulating the periodontal ligament

Materials and Methods

48 human single-root teeth extracted for orthodontic or periodontal reasons were selected. They were cut at cement-enamel junction and the root portions were embedded in an agarose 0.3 % colloidal gel placed in individual transparent methacrylate boxes. Six experimental groups were established: needle -1 mm of the working length, needle -4 mm of the working length, EndoActivator, EndoVac, WaterPik power flosser and ultrasonic activation. The samples were randomized and were endodontically treated using PathFlie®, Pro-Taper® (Until F2) and Profile® (35.04), and were instrumented following the same protocol of irrigation. The final irrigation was different depending on the group. A mixture of sodium hypochlorite 5.25% and methylene blue was used as irrigant (96% of sodium hypochlorite and 4% of methylene blue).

During instrumentation phase, blue irrigant mixture was extruding through the apical foramen and was created a blue different size periradicular area. Two pictures of each sample were taken, the first one at the end of the instrumentation phase and the other one after the final irrigation. The size of these areas was quantified by ImageTool® 3.0 analyzer. The results were subjected to statistical analysis using Kruskal Wallis test for multiple comparisons and Wilcoxon test for paired samples, by the IBM SPSS 22 program.

Results

There were statistically significant differences in the extrusion recorded after the final irrigation in three groups: needle -1 mm of the working length, WaterPik and ultrasound. In needle -4 mm of the working length, EndoVac and EndoActivator groups there were no differences when compared with prior recorded extrusion.

Conclusions

Although there are differences in the degree of extrusion of different final irrigation systems employed, most of the extrusion of the irrigant it was produced during the instrumentation of the root canals.

- Oral Presentation 29

TITLE: Effect of adhesive expiration day on bond strength

AUTHORS: Garcia Belando A, Teruel Rodriguez A, Alegria Aniorte A, Cabello Colas M, Chiva Garcia F.
SOURCE: J Clin Exp Dent. 2014 1;6(Supplement1):S14.

* doi:10.4317/jced.17643813

<http://dx.doi.org/10.4317/jced.17643813>

Objectives

To evaluate the dentin shear bond strength of 3M ESPE adhesive systems: Adper Scotchbond Multi-Purpose (expired in 2015) and Scotchbond Multi-Purpose (expired in 1999).

Materials and Methods

Sixteen permanent posterior teeth were randomly assigned to two groups (n=8 each): (1) non-expired adhesive and (2) expired adhesive. Flat dentinal labial surfaces were carved and adhesives were applied on the dentinal surface according to manufacturer instructions.

Filtek Supreme A3 body (3M) composite cylinders (4 mm diameter; 2 mm high) were polymerized 20 seconds on the treated dentin surface.

After 24 hours of immersion in water at 37° C, shear bond strength was performed using a universal testing machine (Autograph AGS-1KND, Shimadzu, Japan) at a crosshead speed of 1mm/min.

Data were analyzed by t-test at an alpha level of 0,05 using SPSS v.12.

Results

The shear bond strength of unexpired adhesive (18,33 MPa; SD 1,59) was higher than expired adhesive (8,69 MPa; SD 3,55). Significant differences were observed between groups ($p > 0,001$).

Conclusions

As expected, expired adhesive system presented lower bond strength than unexpired adhesive system.

- Oral Presentation 30

TITLE: Six-month clinical evaluation of a universal adhesive

AUTHORS: Giráldez I, Fuentes MV, Baracco B, Ceballos L, Perdigão J.
SOURCE: J Clin Exp Dent. 2014 1;6(Supplement1):S14.

* doi:10.4317/jced.17643814

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Objectives

To compare the 6-month clinical performance of a “universal” adhesive in non-carious Class V lesions using four different adhesive strategies.

Materials and Methods

21 patients participated in this study, in which 70 Class V restorations were placed. The restorations were randomly assigned into four experimental groups according to different adhesive strategies of Scotchbond Universal Adhesive (SBU, 3M ESPE): A. 3-step etch-and-rinse: 34% phosphoric acid (PA, Scotchbond Universal Etchant, 3M ESPE) and application of SBU followed by one coat of the non-solvated bonding resin Scotchbond Multi-Purpose Adhesive (SBMPA, 3M ESPE); B. 2-step etch-and-rinse: 34% PA followed by SBU; C. 2-step self-etch: SBU followed by one coat of SBMPA; D. 1-step self-etch: SBU alone. All restorations were evaluated at baseline and after 6 months by two blind observers using the USPHS criteria. Statistical analysis was performed with the non-parametrical tests Kruskal-Wallis, Mann Whitney U and Wilcoxon ($p < 0.05$).

Results

Only one restoration from the group 1-step/SBU was lost at six months. Marginal adaptation was the only criterion for which statistically worse scores were measured after 6 months ($p < 0.01$). Significantly more bravo scores were detected when SBU was used following a self-etch strategy. The restorations performed with SBU as 1-step self-etch adhesive exhibited a significantly deterioration of the marginal adaptation after 6 months.

Conclusions

Restorations performed with SBU under a self-etch strategy showed worse marginal adaptation after 6 months of clinical use compared to those with SBU under an etch-and-rinse strategy. The addition of a non-solvated hydrophobic coating (SBMPA) did not influence the clinical performance.

- Oral Presentation 31

TITLE: Endodontic treatment for avoiding an inferior alveolar nerve paresthesia

AUTHORS: Gómez Álvarez G, Gómez Martín C, Del Valle Alexandre B, Zorita García M, Mena Álvarez J.

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Introduction

In some cases, the proximity of the inferior alveolar nerve to the lower molars roots causes that when we face chronic apical periodontitis with pulpal origin, it might exist an inferior alveolar nerve affection because of the invasion of the mandibular canal by the injury. An accurate diagnostic of the situation of that injury will be the key in the plan of treatment we should make.

Case report

A 69 year old male patient comes to consulting room asking for a routine consultation. With a first visualization of his ortopantomography, we can see the tooth number 4.7 affected of a chronic apical periodontitis which overlaps with the canal of the alveolar inferior nerve. This overlapping is then better appreciated using a periapical radiography. The patient is completely asymptomatic.

It is decided to do a Cone Beam Computed Tomography (CBCT) to see the injury's location; it is localized in a lingual position of the mandibular canal, starting to invade it and breaking the lingual plate.

Then we proceed to remove the metal crown the patient is wearing in that tooth, and after an evaluation of the remaining tooth under the metal crown, we proceed with the root canal treatment.

When we face these kind of injuries that are overlapping the alveolar inferior nerve canal, we should be careful and make an appropriate diagnostic, with the aim of getting success of the treatment; a quick action in these casual findings will avoid major injuries, being very important the following in the future of these kind of injuries.

Conclusions

The use of Cone Beam Computed Tomography (CBCT) is essential when we find this kind of overlappings, allowing three dimensional visualization. Root canal treatment is able to avoid higher pathologies, such as paresthesias, obtaining bone regeneration in the area and thus improving patient's health.

- Oral Presentation 32

TITLE: Application of Bioinformatics in the Mount/Hume classificacition of caries and his relationship with Orthopantomography

AUTHORS: Hernando Dumaraog B, De Paz JF, Corchado JM, García E, Aliaga I, Campo L, Vera V.

SOURCE: J Clin Exp Dent. 2014 1;6 (Supplement1):S15.

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