were obtained from each root : two coronal third slices, two medium third slices and two apical third slices. The sample was randomly distributed randomly in 3 different study groups: NaOCl 5.25% for 1 minute (3ml), NaOCl 5.25% for 5 minutes (3ml), NaOCl 5.25% for 20 minutes (3ml) plus EDTA 17% for 1 minute (3ml). Each specimen acted as its own control specimen and was immersed in the tested solutions for the estimated time. All specimens were cleaned for 10 seconds in an ultrasonic device before and after treatment with the solutions. The roots were inspected under Fourier Transform Infrared spectroscopy (Excalibur 3010 FT-IR, Varian, Walnut Creek, USA) to evaluate the inorganic and organic composition. The statistical tests were Friedman's and Wilcoxon's Test to assess changes in the same radicular third. The Kruskal-Wallis and Mann-Whitney's were used to evaluate changes among root dentin thirds.

Results

No changes were registered in the phosphate group in the 3 study groups. In the NaOCl 5.25% group, Amida III and Amida I significantly decreased in the apical third. The Amida I also decreased in the medium third too. In the EDTA 17% group, Amida III and Amida I were increased in the apical third.

Conclusions

The inorganic component of the root dentine is not affected by the irrigation solutions. NaOCl 5.25% and EDTA 17% caused changes in the organic component of the root dentin, specially in the apical third.

- Oral Presentation 12

TITLE: Indirect fiber-reinforced composite dowel-core

AUTHORS: Bernardo-Clari J, Torres-Nebril A, Alegre-Domingo T, Faus-Matoses V, Faus-Llácer VJ.
SOURCE: J Clin Exp Dent. 2014 1;6 (Supplement1):S6.

* doi:10.4317/jced.17643796
<http://dx.doi.org/10.4317/jced.17643796>

Introduction

To minimize polymerization shrinkage in the case of non-cylindrical root canals, it is proposed to perform indirect fiber-reinforced composite dowel-cores.

Case report

Three cases of endodontically treated maxillary incisors (two lateral incisors and one central incisor) requiring a post for restoration are presented. Once root canal

treatments were completed, the post spaces were prepared with Gates Glidden burs. Then, impressions with silicone (Elite HD +, Zhermack, Badia Polesine, Italy) were taken with acrylic resin dowels for preparing the dowel-cores in the laboratory. After checking the fitting, the indirect dowel-cores were luted with a high filler load dual resin cement (Core X Flow, Dentsply Maillefer, Konstanz, Germany), following manufacturer's instructions.

Conclusions

This type of indirect dowel-core allows a better adaptation to the canal walls. It is required a smaller amount of cement around and less curing shrinkage is obtained. Therefore, the adhesion of the post within the root canal is improved.

- Oral Presentation 13

TITLE: Using Artificial Intelligence to predict endodontic failure

AUTHORS: Campo Nieves L, De Paz Santana JF, García Barbero AE, Hernando Dumaraog B, Aliaga Vera I, Vera González V.

SOURCE: J Clin Exp Dent. 2014 1;6 (Supplement1):S6.

* doi:10.4317/jced.17643797
<http://dx.doi.org/10.4317/jced.17643797>

Objectives

This manuscript describes the application of Artificial Intelligence (AI) techniques, specifically Case-Based Reasoning (CBR), to predict the failure of root canal therapy.

Materials and Methods

The study was performed on 35 patients who experienced failure in root canal therapy, specifically by crown-root fracture, the appearance of a periapical lesion or the expansion of an existing one. We determined the variables that could influence the appearance of periapical lesion and the level of significance, primarily by applying statistical tests (Chi square, Fischer exact test, and Monte Carlo simulation), before creating the CBR to make predictions.

Results

The creation of a CBR system that integrates Bayesian networks in the reuse phase presented a treatment failure predictive capacity of 89%.

Conclusions

CBR systems were effective in predicting endodontic failures caused by crown-root fracture, the appearance

of a periapical lesion or the expansion of an existing one. These CBR systems provide valuable information that can be used to devise a tailored therapeutic approach.

- Oral Presentation 14

TITLE: Lithium disilicate crown rehabilitation on 1.1

AUTHORS: Costas Soto A, Rosel Gallardo E, Jiménez Martínez JD, Ortega Molina A, Rodríguez Pérez M, Otero Ávila A, Del Castillo Salmerón R.
SOURCE: J Clin Exp Dent. 2014 1;6 (Supplement1):S7.

* doi:10.4317/jced.17643798
<http://dx.doi.org/10.4317/jced.17643798>

Introduction

Through this case report we show the replacement of a metal-ceramic crown on 1.1, with an important aesthetic difficulty because of gingiva shade projected by the metal and the opacity of the material itself.

Case report

We report the case of a woman who comes on January 2014, to Máster Propio de Odontología Estética, University of Granada, with a metal-ceramic crown on 1.1, with a previous root canal treatment, without clinical symptomatology or radiological signs of pathology. The main reason that the patient relates is to equalize the crown on 1.1 to 2.1 in terms of colour, form, length, and to improve the aesthetic removing the gingiva shade generated by the old metal - ceramic crown. In the initial study we carry out the Digital Smile Design (DSD) which is transferred to a diagnostic wax of the right central incisor, in which we take on a silicone matrix to make, later, the provisional crown. In the moment of the metal - ceramic crown remotion, we can see that the gingiva shade is due to the metallic neck of the removed crown, and that the core colour is acceptable to be rehabilitated with a lithium disilicate crown. Thanks to the provisional crown remodeling we can level gingival margins on 1.1 and 2.1 as well as zenith, form and size. After that, we took digital impressions for the definitive lithium disilicate crown.

Conclusions

Lithium disilicate is the material of choice in some clinical cases of anterior rehabilitations so we can resolve the opacity or aesthetics problems generated by the gingiva shade that are created by another materials like metal-ceramic crowns.

- Oral Presentation 15

TITLE: Leptin activates STAT3 signaling pathway in human dental pulp.

AUTHORS: Crespo-Gallardo I, Martín-González J, Sánchez-Domínguez B, Martín-Jiménez M, Segura-Egea JJ.
SOURCE: J Clin Exp Dent. 2014 1;6 (Supplement1):S7.

* doi:10.4317/jced.17643799
<http://dx.doi.org/10.4317/jced.17643799>

Objectives

After leptin receptor (LEPR) identification in normal and inflamed human dental pulp, a role for leptin in this tissue has been accepted. This study aims to assess if leptin signal transduction in human dental pulp involves STAT-3 phosphorylation.

Materials and Methods

Fifteen dental pulp samples were obtained from freshly caries- and restoration- free extracted human third molars. Pulp samples were processed and to study the possible activation of STAT-3 by leptin, human dental pulp was stimulated with human leptin and solubilized lysed samples were analyzed by Western blot using antibodies that specifically recognize the tyrosine phosphorylated form of STAT-3 (P-STAT-3).

Results

Leptin stimulated JAK-STAT pathway by promoting STAT-3 tyrosine phosphorylation. This signalling pathway was confirmed in all human dental pulps. Western blot analysis revealed the presence in the pulp samples of a protein with apparent molecular weight of 93 kDa, which corresponds to the estimated molecular weight of P-STAT-3. The amount of P-STAT-3 in every sample was controlled with anti- β -tubulin immunoblot. Tyrosine phosphorylation of STAT-3 was observed in response to human leptin treatment. Activation of STAT-3 was observed at 0.1, 1 and 10 nM leptin but the maximal activation of STAT-3 was observed at 0.1 nM leptin. The relative amount of P-STAT-3 in stimulated pulps was significantly higher than in unstimulated pulps ($p < 0.05$).

Conclusions

STAT-3 is involved in leptin signalling pathways in human dental pulp. To further understand the signal transduction of leptin in human dental pulp, is important to assess the major other signalling pathways known to be activated by leptin receptor in other systems.