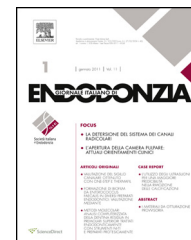




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ORIGINAL ARTICLE/ARTICOLO ORIGINALE

Effectiveness of two integrated systems for the treatment of maxillary central incisors with periapical lesion: An 18-month randomized clinical trial[☆]

Efficacia di due sistemi integrati per il trattamento di incisivi centrali mascellari con lesione periapicale: Trial clinico randomizzato a 18 mesi

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KEYWORDS

Periapical lesion;
Integrated endodontic techniques;
Carrier based systems;
Healing.

Abstract

Aim: To assess the 18-month success rate of root canal treatment with two integrated shaping and filling systems on upper central incisors with chronic periapical pathosis.

Methodology: Sixty patients with an upper central incisors with a chronic periapical lesion smaller than 5 mm in diameter were randomly allocated to two treatment groups, which only differed in terms of canal shaping and filling protocol: G1 (n = 30), Revo-S/One Step Obturator; G2 (n = 30) GTX/GTX Obturator. The patients underwent clinical assessment at baseline and after 6, 12 and 18 months. Radiographic healing was scored according to a previously described scale by two independent examiners, who analysed the periapical radiographs taken at the recall visits. Intra- and inter-observer reliability was tested with Kappa statistics. The significance of

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PAROLE CHIAVE

Lesione periapicale;
Tecniche endodontiche integrate;
Sistemi carrier-based;
Guarigione.

the differences between the two groups and among time points with regard to clinical and radiographic data was evaluated with non-parametric tests ($p < 0.05$).

Results: All enrolled patients were available for re-evaluation. At the final recall, the cases were scored as total healing, partial healing and failure with the following frequencies: 93.3%, 3.3% and 3.3% of cases in G1 and in 93.3%, 0% and 6.7% of cases in G2. Radiographic healing scores were similar in the two groups irrespective of the experimental time point. The prevalence of symptoms was scarce (0–10%), stable over time and similar in the two groups.

Conclusions: The clinical performance of two considered integrated systems for the endodontic treatment of upper central incisors with periapical lesion was comparable and allowed for high success rates after 18 months.

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Riassunto

Obiettivi: Valutare il successo a 18 mesi del trattamento endodontico di incisivi centrali superiori affetti da patologia periapicale cronica con tecniche integrate di strumentazione e otturazione.

Materiali e metodi: Sessanta pazienti con un incisivo centrale affetto da lesione periapicale cronica di diametro inferiore a 5 mm sono stati assegnati casualmente a due gruppi di trattamento, diversi tra loro solo per protocollo di sagomatura e otturazione canalare: G1 (n = 30), Revo-S/One Step Obturator; G2 (n = 30) GTX/GTX Obturator. I pazienti sono stati sottoposti a esame clinico iniziale e dopo 6, 12 e 18 mesi. Alla guarigione radiografica è stato assegnato un punteggio sulla base di una scala descritta in precedenza analizzando le radiografie periapicali acquisite ai richiami. Il grado di accordo intra- e interosservatore è stato testato con Kappa di Cohen. La significatività delle differenze tra i due gruppi e tra i tempi in relazione ai dati clinici e radiografici è stata valutata con test non parametrici ($p < 0,05$).

Risultati: È stato possibile rivalutare tutti i pazienti arruolati. Al richiamo finale le lesioni sono state classificate come guarita, guarita parzialmente e non guarita con le seguenti frequenze: 93,3%, 3,3% e 3,3% dei casi in G1 e 93,3%, 0% e 6,7% dei casi in G2. I punteggi di guarigione radiografica sono risultati simili nei due gruppi indipendentemente dal tempo sperimentale. La prevalenza dei sintomi è stata scarsa (0-10%), stabile nel tempo e simile nei due gruppi.

Conclusioni: La performance clinica dei due sistemi integrati considerati nel trattamento endodontico di incisivi centrali superiori con lesione periapicale è risultata comparabile e ha permesso tassi di successo elevati dopo 18 mesi.

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Introduction

A trend of simplification of root canal shaping and filling techniques has arisen in the field of Endodontics.¹ The rotary file sequences of modern Ni-Ti systems are composed of fewer instruments in comparison to the past.¹ Similarly, canal filling can be simplified and performed in a single step using of carrier-based systems, which might introduce less filling defects compared to multi-step techniques, especially when used by novices.² Even if there is no doubt that a wide array of technological advances has improved the treatment delivery in the field of Endodontics, the scientific community is still questioning whether using modern techniques and instruments implies also better success rates, even more in case of periapical pathosis.³ This work presents the updated findings of a previously published trial, in which two simplified techniques were clinically tested.¹ These techniques are found on similar principles but are proposed by different manufacturers. They consist in a shaping protocol with rotary files composed of a standard sequence of few instruments, namely the Revo-S (Micro-Mega, Besançon, France) and GTX (Dentsply Tulsa Dental Specialties, Tulsa, OK, USA) files

systems. Both shaping protocols are followed by root canal filling by means of carrier-based dedicated systems, the One-Step Obturator (CMS Dental ApS, Copenhagen, Denmark) and GTX Obturator (Dentsply Tulsa Dental Specialties), respectively.

The aim of the present study was to assess the 18-month success rate of root canal treatment with the two aforementioned integrated shaping and filling systems of upper central incisors with chronic periapical pathosis.

Materials and methodology

The present randomized controlled trial was conducted in accordance with the principles expressed in the CONSORT statement⁴ and the last update of the Helsinki Declaration. The primary outcome measures were the radiographic healing and the sensitivity to tooth percussion and palpation of the buccal sulcus. The trial recruited patients affected by chronic or asymptomatic apical periodontitis, according to the definition given by Gutmann et al.⁵ Sixty adult patients needing a primary endodontic treatment on a maxillary

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