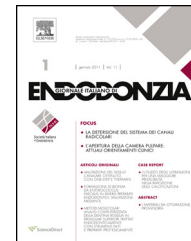




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ORIGINAL ARTICLE/ARTICOLO ORIGINALE

# Upper central incisors with periapical lesions treated with two integrated endodontic systems: a six-month randomized controlled trial



*Incisivi centrali superiori con lesione periapicale trattati con due sistemi endodontici integrati: trial clinico controllato randomizzato a sei mesi*

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## KEYWORDS

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

## Abstract

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

**Methodology:** Sixty adult subjects with an untreated maxillary central incisor presenting a chronic periapical lesion smaller than 5 mm in diameter were recruited for the present study. The patients were randomly divided into two treatment groups: G1 ( $n = 30$ ), Revo-S/One Step Obturator; G2 ( $n = 30$ ) GTX/GTX Obturator. All root canal treatments were performed in a single session by the same operator. Sensitivity to palpation and percussion was registered at baseline

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## PAROLE CHIAVE

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

and at the six-month recall. Radiographic healing was scored by two blind examiners according to a previously described scale. The absence of statistically significant differences in terms of baseline clinical parameters between the two groups was assessed by means of a Mann–Whitney test (age, apical gauging) and  $\chi^2$  test (sensitivity to percussion and palpation). The radiographic scores attributed to the two groups were compared with a Mann–Whitney test, while a  $\chi^2$  test served to compare the clinical data gathered after six months ( $p < 0.05$ ).

**Results:** Baseline clinical parameters registered in the two groups were found to be comparable. All patients attended the six-month recall and all the teeth were referred to be negative to sensitivity, with the exemption of two subjects per group. The periapical lesions were scored as totally healed, partially healed and not healed in 43.4%, 53.3% and 3.3% of cases in G1 and in 43.3%, 50.0% and 6.7% of cases in G2. The differences between the groups were not significant.

**Conclusions:** Tough cases scored as incomplete healing should be further followed up, the present study attests that the two tested integrated shaping and filling systems are capable of high and comparable six-month success rate in upper central incisors with periapical pathosis.

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## Riassunto

**Obiettivi:** Valutare preliminarmente il tasso di successo del trattamento endodontico di incisivi centrali superiori con lesione periapicale eseguito con due sistemi integrati di strumentazione e obturazione.

**Materiali e metodi:** Sono stati reclutati 60 soggetti adulti con un incisivo mascellare centrale non trattato affetto da una lesione periapicale inferiore a 5 mm in diametro. I pazienti sono stati divisi casualmente in due gruppi di trattamento: G1 (n = 30), Revo-S/One Step Obturator; G2 (n = 30) GTX/GTX Obturator. Tutti i trattamenti endodontici sono stati eseguiti in singola seduta dal medesimo operatore. La dolorabilità alla palpazione e alla percussione è stata registrata al baseline e al controllo a sei mesi. Alla guarigione radiografica è stato attribuito un punteggio da due esaminatori estranei alla sperimentazione sulla base di una scala descritta in precedenza. L'assenza di differenze significative dei parametri di partenza tra i due gruppi è stata valutata con test Mann-Whitney (età, gauging apicale) e  $\chi^2$  (sensibilità a palpazione e percussione). I punteggi radiografici attribuiti ai due gruppi sono stati confrontati con un test di Mann-Whitney, mentre i dati clinici con test  $\chi^2$  ( $p < 0,05$ ).

**Risultati:** I parametri clinici al baseline registrati nei due gruppi sono risultati paragonabili. Tutti i pazienti si sono presentati ai controlli a sei mesi, senza lamentare dolorabilità ai denti trattati, con l'eccezione di due soggetti per gruppo. Le lesioni periapicali sono state classificate come guarite, ridotte in dimensioni e non guarite rispettivamente nel 43,4%, 53,3% e 3,3% dei casi in G1 e nel 43,3%, 50,0% and 6,7% dei casi in G2. Le differenze tra i gruppi non erano statisticamente significative.

**Conclusioni:** Sebbene i casi classificati come guarigione parziale debbano essere ulteriormente seguiti nel tempo, il presente studio dimostra che i due sistemi integrati di strumentazione e obturazione sono capaci di tassi di successo elevati e tra loro simili per il trattamento della patologia periapicale di incisivi centrali superiori a 6 mesi.

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## Introduction

Remnants of necrotic pulp and microbial infection inside the endodontic space are known causes of common inflammatory odontogenic lesions, the most frequent being the periapical periodontitis and radicular cyst. For the root canal treatment to be successful in restoring the periapical health, the clinician should maximize his effort to chemo-mechanically remove the infected endodontic content and seal the root canal with an effective three-dimensional filling.

During the last years a modern trend of simplification of both shaping and filling techniques has arisen in endodontics. Several manufacturers are introducing on the market shaping

systems with rotary files that require fewer steps than older systems.<sup>1</sup> Similarly, carrier-based systems allow for a single-step root canal filling without renouncing to the thermoplasticisation of the gutta-percha. It is known that the likelihood to introduce operative errors in the filling procedure increases with the number of steps, because micro-tomographic data attest that inexperienced operators can obtain better results with carrier-based techniques in comparison with the continuous wave of condensation.<sup>2</sup> Moreover, the correspondence in shape and size between the shaping and the filling instruments, which can be proposed as an integrated system, facilitates the clinician's tasks during the different phases of the endodontic treatment. Examples of

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