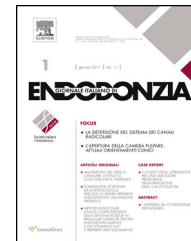




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CASE REPORT/CASO CLINICO

33° CONGRESSO NAZIONALE VINCITORE PREMIO GIORGIO LAVAGNOLI

Complex endodontic and conservative treatment of a traumatized central incisor



Recupero endodontico-conservativo complesso di un incisivo centrale superiore traumatizzato

Nicola Scotti*, Damiano Pasqualini, Elio Berutti

Department of Surgical Sciences, Dental School Lingotto, University of Turin, Italy

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KEYWORDS

Open-apex;
MTA;
Direct restoration;
Dental trauma;
Composite.

Abstract

Objectives: The functional recovery of a tooth with open-apex already endodontically treated is possible thanks to the materials, such as the MTA, able to produce an effective seal of the apex which can induce a *restitutio-ad-integrum*. A direct composite resin restoration may then provide a coronal seal immediate and effective in time, able to ensure a complete healing of the endodontic pathology.

Materials and methods: The hereby-clinical case describes a combined approach (endodontic and conservative) for the aesthetic-functional recovery of a severely fractured upper incisor of a child of 11 years.

Results and conclusions: At the control visit, after 12 months from the completion of the coronal restoration, a complete healing of periradicular bone tissue is observed through Rx. Clinical examination showed gingival tissue without inflammation and the probing depth is not increased, despite the presence of a cavity margin placed below the gingival margin.

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* Corresponding author at: Dental School Lingotto, Università degli Studi di Torino, Via Nizza 230, 10126 Torino, Italy.
Tel.: +39 011 6331568.

E-mail: nicola.scotti@unito.it (N. Scotti).

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PAROLE CHIAVE

Apice beante;
MTA;
Restauro diretto;
Trauma dentale;
Composito.

Riassunto

Obiettivi: Il recupero funzionale di un elemento dentario con apice beante già trattato endodonticamente è oggi possibile grazie a materiali, quali l'MTA, in grado di produrre un sigillo apicale efficace in grado di portare ad una restitution-ad-integrum. Un restauro diretto in composito può successivamente fornire un sigillo coronale efficace nel tempo, indispensabile per ottenere una guarigione endodontica completa.

Materiali e metodi: Il caso clinico presentato mostra un approccio combinato (endodotico e conservativo) per il recupero estetico-funzionale di un incisivo centrale superiore di un bambino di 11 anni.

Risultati e conclusioni: Alla visita di controllo, dopo 12 mesi dal completamento del restauro coronale, si può osservare dall'esame radiografico una completa guarigione dei tessuto osseo periradicolare. All'esame clinico si può apprezzare un tessuto gengivale non infiammato senza aumento di profondità di sondaggio nonostante un margine del restauro coronale posto sottogengiva.

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Introduction

Previous epidemiological studies claim that one in four people has past experience of dental trauma, with an annual incidence that, in the United States, ranging from 1 to 3% of the population.¹

The dental trauma may present different clinical situations, depending on the direction and the force with which they occur, which significantly affect the diagnosis, treatment and, most importantly, the prognosis of teeth involved. The most common dental traumas include fractures of the enamel (67% of cases), followed by enamel-dentin fractures (25.3%). Indeed, we can have different levels of fracture: involving only the clinical crown or, in the worst cases, with margins of fracture at the level of the gingival sulcus, below the CEJ or even engaging the root. In some of these cases may also be involved the endodontic portion of the tooth. In any case, it is fundamental for a proper treatment plan to identify properly the extension of the enamel-dentine fracture and which dental and/or periodontal tissues are involved.

The fracture extension leads, in fact, the treatment. Currently, when lesions are mostly localized above the CEJ, and the fragment lost is recovered, stored correctly and still intact, it can be repositioned thanks to adhesive techniques. When the portions of the clinical crown fractured are not retrieved, the tooth can be rehabilitated by means of direct or indirect adhesive restorative techniques.³ When you have complicated fractures or dislocations that lead to irreversible damage to the pulp tissue, endodontic therapy is necessary.⁴

All patients affected by dental trauma should receive a restorative treatment fast, simple and that gives good aesthetic and functional results. In cases of large losses of tissue, the rehabilitation of the anterior teeth of these patients is used obtained through indirect restorations.^{5,6} However, thanks to the development of composite materials and adhesive techniques, currently the direct restorations with composite resins, if properly planned, can provide excellent aesthetics and function in the face of a less invasive therapy.

Materials and methods

The patient P.S., 10-year-old male, has come to the Department of Operative Dentistry and Endodontics of The University of Turin because of an exacerbation of chronic apical periodontitis in the right upper central incisor with previous

dental trauma. Clinically, the tooth showed an incongruous and fractured composite restoration, made as a result of complicated coronal fracture extended below the gingival margin, due to an injury occurred three months earlier (Fig. 1). The periapical radiography showed that 1.1 has an open-apex with previous and incongruous endodontic treatment, endodontic material beyond the apex and a large periradicular osteolytic lesion (Fig. 2).

In order to resolve in the first instance the endodontic lesion an endodontic retreatment was performed. After having anesthetized the area, the field isolation was obtained by means of a rubber dam. Once the access to the root canal was created, the material employed for the previous endodontic treatment was removed. Then, to obtain cleansing and disinfection of the root canal without the risk that the solutions could go over-apex, alternating washes were performed with 5% sodium hypochlorite and 10% EDTA with the aid of a negative pressure system (Endovac, ...). Since the large diameter of the apex, a MTA apical-plug (ProRoot, Maillefer, Ballaigues, Switzerland) has been realized (Fig. 3). After a week, the proper hardening of the MTA was checked and the orthograde endodontic therapy was completed with the back-pack with Hot Shot (Sybron Endo, California, USA) and the coronal seal with glass-ionomer (Fuji IX, GC, Tokyo, Japan).

After 6 weeks, the micro-surgical endodontic therapy was performed in order to remove the endodontic material beyond the apex and regularize the shape of the apex. After having anesthetized the area with local anesthesia, using a solution of adrenaline mepivacaine + sol. 1:100000, and maintained haemostasis with a solution of mepivacaine + epinephrine 1:50000, a sulcular incision extended to 1.2



Figure 1 Initial clinical condition: 1.1 shows a severe fracture because of a dental trauma that occurred 3 month before.

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