For endodontically treated teeth with more than one missing dentin wall the placement of a post to maintain the coronal structure is strongly suggested. To place it properly, it is key to retain as much dentin as possible while preparing the root canal beforehand VDW’s DT Posts with Double Taper Shape preserve more dentin as the two-stage design corresponds optimally to the morphology of the prepared root canal. Thus the dentist avoids unnecessary dentin removal to fit in the post.

Tooth protection and better esthetics

The DT Posts break resistant quartz fiber material has advantageous mechanical characteristics. Its low modulus of elasticity distributes chewing forces correctly and minimizes the risk for root fractures. Thanks to the quartz fiber material’s translucency properties the patient benefits from better esthetics.

Safe retention and easy post location

VDW’s DT Posts after room convincing features. The Safety Lock® coating ensures maximum bond properties and thus a safe long-standing retention of the post. The thermal reactive color pigments of VDW’s DT ILLUSION® XRO® SL posts enable their location after the placement. Being barely visible at body temperature, they become clearly detectable after cooling below 30 °Celsius.

Success evaluation of N2 treated teeth with open apical foramen.

A retrospective study

By Dr Anette Joschko, Dr Robert Treurniet & Prof. Jerome Rotgans, Germany

Abstract

95 teeth with open foramen were identified in a general dentist practice during the years 1985—2006. 75 of which could be followed-up by X-ray after an average time of 70 months (follow-up X-ray). 40 teeth were subject to vital extratraction (VIT), 28 teeth to vital amputation (VIA) and seven teeth with necrotic pulps underwent conservative root canal treatment (RT). Apexification success rate amounted to 85.5% (VIT 90.5%, VIA 87.5%, non-vital RT 87.6%). Another 12% could be judged as partial success in molars, as a certain number of the molar roots showed apexitication, however, others not yet. The procrastination difference of a successful application between vitally extrattracted and root canal treatment of non-vital teeth was significant (p = 0.0495). Apexification result was irrespective of the filling level of root canal treated teeth as well as endodontic success.

Endodontic failures resulted in two cases (3.5%). Statistic significance was found regarding failure rate of VITA (71.5%) and root canal treatment of non-vital teeth (28.6%, p = 0.0387).

Within the observation period 19 out of the 95 teeth with open foramen (20%) were extracted. There was a significant difference regarding extraction frequency between the VIT group (45.5%) and the non-vital group (32%) (p = 0.0295).

Introduction

Endodontic treatment of teeth with incomplete root growth poses a special challenge. In young patients, the necessity for endodontic treatment results from an accident or profound caries. Aside from damage control, this treatment aims at promoting tooth maturation including narrowing respectively closure of the apical foramen (apexitication) and possibly root extension (apexogenesis).

According to Zehlow (1997) the following treatment options are commonly used:

- For vital teeth: Pulpotomy (VIA) with subsequent conservative root canal treatment (RT)
- For non-vital teeth: - either RT or - RT in connection with apicectomy/retegrade root canal filling or induction of bleeding with root canal filling in the coronal root part only.

Kraut et al. (1997) disapproved of a VIA inevitably following root canal filling (Joschko 2002) points out that the often diverging roots of immature teeth exclude a dense root canal filling, and that open apical foramen promotes overfilling. Some authors, like Kornørland et al. (2003) and Hult (2003), state that the dental papilla may simulate an apical periodontinosis in the area of the open apical foramen.

Various methods favouring maturation of the immature teeth are described. Surgical interventions turned out to be less promising (Kreter 1993, Khoury 1993) Herforth (1998) obtained a very high healing rate of apical periodontitis with iodoform deposits, however the success rate regarding stimulation of hard tissue induction only amounted to 3% versus 87% with calcium hydroxide (Koelle 1991). Hermann (1920, 1930) introduced calcium hydroxide as material with osteogenic potential. Frank (1966) was the first to use it as medical dressing in teeth with incomplete root growth. These dressings should be replaced approx every three months for a time period of six through 18 months. Cvek (1972) and Foglin (1985), however, do favor a replacement of the dressing only in case of pathology. The long treatment duration—and thus loss of patient compliance—as well as a decrease of fracture resistance (Cvek 1972, Andersen, Fabrik and Munksgaard 2001, Andersen, Munksgaard and Bakland 2000, Tropel 2000) are regarded as adverse features of the calcium hydroxide method.

As formaldehyde also features an osteogenic potential (Urban 1936), tests with formononexyl versus calcium hydroxide were made as well. Within a pulpotomy study, Speding et al. (1965) judged formomexyl as being more appropriate for apexitication. Latest literature prefers mineral trioxide aggregate (MTA) over calcium hydroxide (Andrews et al. 2006, Schwartz et al. 2008, Schaper 2003, Shahabaghi et al. 1999) as well as Hilligey et al. (2006) made a comparison between mineral trioxide aggregate and calcium hydroxide ending up in favour of MTA.

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