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ORIGINAL ARTICLE

Concepts of restoring endodontically treated teeth among dentists in Saudi Arabia

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KEYWORDS

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Abstract *Objective:* The purpose of this survey was to investigate the current concepts, opinions, techniques and materials used on how to restore the endodontically treated teeth (ETT) among dentists in Saudi Arabia.
Materials and methods: A self administrative questionnaire especially designed for this study was distributed among a conveniently selected sample. A total of 204 questionnaires were completed (Response rate = 30%).
Results: Irrespective of their occupational experience, 62% of the surveyed dentists considered the remaining tooth structure while restoration of ETT while 10% will always place a post in ETT. More than half of the surveyed dentists (52%) believed that a post reinforces ETT either always or sometimes. Majority of the participants agreed that ferrule effect will always (46%) or sometimes (32%) increase the fracture resistance of an ETT. Prefabricated posts were used by 53% and cast posts by 37% of all the participants. The use of parallel sided prefabricated posts, made of metal (29%) or non metal (29%), was the most preferred technique by the surveyed dentists. 60% of the participants agreed that 2/3rd of the canal should be used for the post length. Composite resin (57%) was preferred for core foundation, followed by amalgam (19%) among the participants. Posts are placed primarily with glass ionomer cement (48%), followed by resin cement (22%) and zinc phosphate cement (21%).
Conclusion: The use of the posts was common and the belief that a post reinforces an ETT might explain the reason for its usage by the Saudi dentists. The use of prefabricated post, composite resin

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as core material and glass ionomer as luting cement is common, while restoring ETT by the Saudi dentists. Endodontic failure was thought to be the most common reason for failure of ETT by the Saudi dentists.

1. Introduction

The aim of endodontic and restorative dentistry is the conservation of natural tooth structure. Endodontically treated teeth undergo loss of tooth structure and changes in physical characteristics, such as reduced modulus of elasticity, which often will lead to increased fracture susceptibility when compared to unrestored vital teeth[1–3].

There is a general agreement that endodontic treatment failure is more likely due to restoration failure than endodontic treatment itself. However, it is important to follow a treatment plan with a full respect to the endodontic and restorative techniques. So the final restoration following the root canal treatment is of major importance for a successful outcome otherwise improper restorations may even lead to tooth extraction.[4]

The prognosis of endodontically treated teeth (ETT) is influenced by a variety of different parameters such as the number of adjacent teeth, occlusal contacts, position of the tooth in the dental arch, apical status, collagen degradation, intermolecular cross- linking of the root dentin, amount of hard tissue loss, remaining dentin wall thickness, type of definitive restoration, presence of a minimum of 1.5–2.0 mm of ferrule preparation and type of post and core material used.[5]

Evidence based treatment is becoming increasingly important in dentistry. Treatment decisions and strategies should be based on the best and most up-to-date factual evidence available.[6]

Numerous techniques to restore endodontically treated teeth have been advocated with criteria for success depending on variations in length, shape and surface configuration, amount of dentin structure[7–9], materials and techniques used in construction.[10,11]

A post is a dental material placed in the root of a structurally insufficient tooth when additional retention is needed to retain the core and coronal restoration. The post should provide this support without increasing the risk of root fracture. It is generally accepted that the purpose of post placement is to retain a core foundation and not to reinforce an ETT.[5,12–14] The core itself is a dental restoration commonly made of composite resin used to build up missing tooth structure, usually for future restoration with a crown.[15]

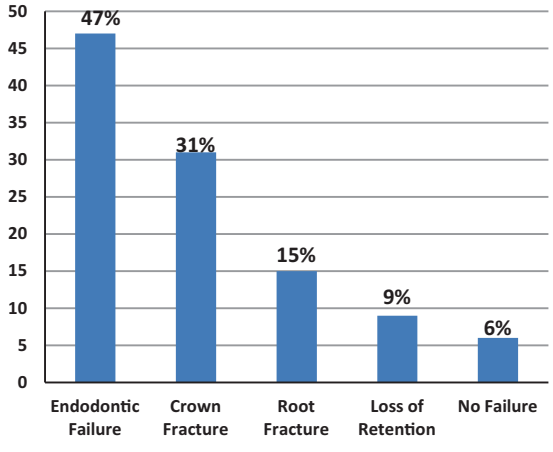

Figure 1 Reasons of failure in endodontically treated teeth.

The longevity of a restored tooth depends on the amount of remaining tooth structure and on the efficiency of the restorative procedure used to replace lost structural integrity.[13,16,17]

Dentists are confronted with a continuously growing number of various materials for post endodontic restoration and with an increasing occurrence of ETT in need of treatment. However, the scientific literature provides numerous, primarily material-oriented, noncomparable and possibly confusing in vitro studies. There is a lack of well-designed randomized controlled clinical trials. Hence, it is not surprising that the manner in which post endodontic restorative care is performed does not fully reflect recommendations from the literature, but is influenced by geographic location, age, and specialty status. These findings suggest that each dentist develops his/her own experience based treatment concept. Thus, surveys are important tools to assess and to understand treatment approaches in postendodontic restorations.[5,15]

The present survey was conducted to investigate the techniques and materials used in the restoration of endodontically treated teeth by the dentists in Saudi Arabia. This helped to identify the concepts and opinions of the dentists in this region about the restoration of ETT compared to the concepts of the dentists in other parts of the world.

2. Materials and methods

This research project was approved by the ethics committee of the College of Dentistry Research Center, King Saud University, Riyadh. The required information was collected through an anonymous questionnaire. The questionnaire was adopted from previous studies[5,11] and modified to suit the requirements of the present study.

The questionnaire consisted of two main parts; first part collected the demographic information, while the second part contained 13 multiple-choice questions. The initial section of the second part concerned the treatment concepts, opinions for ETT and the later section contained questions related to the materials and techniques used for the treatment of ETT among the participants.

The questionnaires along with a cover letter stating the instructions, rationale and purpose of the survey were distributed by hand and through emails among the general dentists and specialist dentists (dentists with post graduate degree or diploma) working in the government and private sectors of Saudi Arabia, who were practicing restoration of endodontically treated teeth in their clinics. Dentists who were not treating endodontically treated teeth in their practice were not included in the study. The participants who received the questionnaire by hand, filled it by hand and returned it. And the