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PREFABRICATED POST AND CORE MATERIAL VERSUS CUSTOM-CAST POST AND CORE IN A MAXILLARY FIRST PREMOLAR TOOTH: REVIEW OF LITERATURE AND MANAGEMENT OF A CLINICAL CASE

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ABSTRACT

When an abutment tooth is endodontically treated and is intact except for the access opening, the amount of tooth structure remaining after tooth preparation must be carefully assessed. If only a thin peripheral shell of tooth remains after reduction (which occurs frequently in incisors, canines and premolars), a cast post and core should be fabricated. In this article, the use of a prefabricated post and core material versus a custom-cast post and core is reviewed. A clinical management of an improperly restored endodontically treated maxillary first premolar tooth is also presented.

INTRODUCTION

With increasing numbers of teeth being retained by endodontic therapy, there is a concomitant need for the dentist to have the knowledge and skills to restore them.

Coronal tooth structure may be lost for a variety of reasons. Caries, previous restorative treatment, traumatic injury, attrition, erosion, abrasion and resorption (internal and external) may contribute to loss of coronal tooth structure. The extent of the destruction is an important determinant factor in deciding on the restorative techniques and materials to be used in restoring the tooth to normal form and function.

Endodontically treated teeth demand special restorative attention. Designing a restoration for any of those teeth depends primarily on the amount of remaining tooth structure*[11]. Additional factors include the tooth type and its position in the arch, morphology and the perio-dontal status of the tooth[4,6,11]. The amount of occlusal stress and whether the tooth will serve as an abutment for a fixed or removable prosthesis are also other factors to be considered*[3,4,6]. Goerig and Mueninghoff[4] considered the tooth's location in the arch as the most important criterion. In evaluating tooth location in the arch, the clinician must realize that each tooth group exhibits a unique morphology and structure and is subjected to different degrees of stress during function[4]. In posterior teeth, the occlusal forces are directed more axially than in anterior teeth in whose case the forces are more lateral*[3,1]". The direction and degree of occlusal stress can be increased if the tooth is to be used as an abutment for a fixed or removable prosthesis*[3,4,10].

A previously unrestored tooth requiring endodontic therapy with a minimal access opening through enamel and a slight enlargement of the pulp chamber and root canal may be treated adequately by placing a filling material in the root canal, approximately to the level of bone, and the endodontic access hole[2]. The choice of material can range from a traditional glass ionomer to resin-modified glass ionomer, bonded composite and bonded amalgam[2]. In a recent survey, amalgam was chosen four times more often than composite to restore posterior teeth[10].

When more than one-half or almost all of the coronal tooth structure has been removed in an endodontically treated tooth, it is logical to place a post, attaching the root structure to a core material that is bonded to the remaining tooth structure[2]. The indication of such a post is based on retention and stabilization of the core rather than reinforcement of the root[2,11]. In posterior teeth, with minimal remaining tooth structure that cannot retain an amalgam core, a cast post should be placed to retain the core[11]. The post and core, however, should not jeopardize tooth structure.

This paper presents a clinical management of an improperly restored endodontically treated maxillary first premolar tooth. A clinical report

A twenty three-year-old female dentist patient presented with a chief compliant of staining of a maxillary right first premolar tooth by an old, large amalgam restoration. Clinically, the restoration had defective margins with recurrent caries developing around it. Radiographically, a prefabricated post was misplaced in the palatal canal with a little dentine thickness of less than

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