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Management of Flared Root Canal with Anatomical Post and Core Using Conventional and Digital Technique: A Literature Review

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Abstract

Endodontically treated teeth often requires internal retainers and cores to support the final restoration due to significant structural damage. Nevertheless, the discrepancy between the size of the root canal space and the diameter of the post is an important clinical consideration, especially in cases of flared or widened root canals. Even though cast metal post and cores can adapt well to remaining root structure, they present a high elastic modulus which can lead to irreparable root fractures. Conversely, bonding prefabricated glass-fiber posts to flared root canals results in thick resin cement layers, increasing the possibility of structural discontinuities and potentially creating a weak spot in the restoration.

Anatomic post is one of the techniques involving the reconstruction of flared root canals by lining glass-fiber posts with resin composite to match the shape of the flared post space. However, multiple interfaces are created when several materials are used.

The computer-aided design/computer-aided manufacture (CAD/CAM) process can be applied to the production of individually, anatomically fitted, and monolithic posts. Eliminating the need for multiple materials and reducing the number of interfaces in the cemented structure. Both of these technique approaches are highly effective in reducing the amount of luting cement required, enhancing mechanical properties of the restoration and reducing chances of irreparable fracture.

The aim of this literature review is to provide general information, methods for making post and core, mechanical properties, and discuss the efficacy of anatomic fiber post and CAD/CAM customized post and core in flared canals.

Keywords: anatomical post, CAD/CAM post and core, flared root canal