# Effect of Hypercementosis in Endodontics

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## Introduction

Hypercementosis, also called cementum hyperplasia contains the excessive formation of tissue, with either local spots or the entire surface of the root. Hypercementum is the excessive deposition of non-neoplastic cementum on normal cementum, altering root morphology. This cement can be either hypocellular or cellular in nature. The cause of hypercementosis is unknown. Although idiopathic in most cases, some local and systemic factors such as Paget's disease, acromegaly, and vitamin A deficiency are also associated with this condition.

## Clinical and Radiographic Features

Radiographs show thickened or blunted roots of affected teeth, but cementum and dentin have similar radio density, so determine the exact amount of raised cementum is often difficult. The enlarged root is surrounded by a radiation-permeable PDL space and an adjacent intact periodontal ligament. In some cases, enlargement may be important enough to indicate the potential for benign cementoblastoma. However, benign cementoblastoma can usually be distinguished on the basis of associated pain, cortical dilation, and continuous enlargement. Hypercementosis may be isolated, affect multiple teeth, or appear as a generalized process. Hypercementosis occurs primarily in adulthood, increases with age which is most likely secondary to cumulative exposure to the causative agent. Outbreaks have been reported in younger patients, and many of these cases show familial aggregation, suggesting genetic effects. The exact cause is unknown, but hypercementosis may be in response to inflammation or loss of maxillary tooth function due to the lack of contralateral teeth. Hypercementosis is known to be associated with fractured teeth or severely occlusal teeth. Physiological cementum is a calcified tissue that covers the root surface and is less hard than dentin. Its composition is evenly divided into organic and inorganic, and it is the body tissue with the highest fluoride content. Cementum is part of the dentin/periodontal tissue interface and is embedded in its most superficial layer, along with the periodontal collagen fibres also called as sharpey's fibres.

## Hypercementosis in Endodontics

Clinically, hypercementosis can have a direct impact on root canal treatment. This is because during endodontic treatment, the specialist must be aware of the key anatomical criteria for determining the success of endodontic treatment: the Cementum-Dentin Canal (CDC) junction. When observing hypercemented teeth, the dentin canal is more than 1 mm above the radiographic apex and this cement may not be permeable to endodontic appliances, so endodontic practitioners can face difficult to achieve proper shaping and filling margins. It is important to emphasize that when the root canal is shaped and filled below the appropriate limits, contaminated areas or inflamed tissue are retained in the root canal without repair conditions leading to endodontic failure.

A third stenosis of the apex associated with the relationship between hypercementosis and the appearance of more secondary, auxiliary, and apical deltas, changes the original pathway of the main tube. These changes in the internal morphology of the apical third of teeth presenting hypercemented may not be apparent on radiographs and may complicate endodontic treatment. Hypercementosis provides an additional site for bacterial colonization during pulp contamination and may contribute to the development of chronic apical periodontitis resistant to the endodontic treatment. Additionally, in hypercementosis, the foramen can be localized to the lateral sides of the root, leading to the development of intraperiodontal lesions.

The apical anatomy contains three different anatomical and histological boundaries that are apical stenosis, CDC junction, and apical foramen. Apical stenosis is generally located 0.5-1.5 mm anterior to the apical foramen. This area is the most common landmark used by dentists as an apical boundary for cleaning, shaping, and filling root canals. However, the location of the CDC transition is very variable. In most cases, the root canal is not opened in a single apical foramen, but the secondary and accessary canals containing the so-called apical delta they open in small foramens, namely foramina, ranging in diameters from 60 to 80. In teeth without hypercementosis, the root canal is close to the apical foramen and therefore extends from the apical constriction. However, the shape of the space between the apical stenosis and the hole can be defined as a conical or tapered with the smallest diameter facing the apical stenosis. The continuous deposition of cement on the apex increases the average distance between these two points as the patient get older.

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