

Hypercementosis and Endodontic therapy

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Abstract

Teeth with hypercementosis is a common. The severity may vary depending upon the age, the It is characterized by excessive cementum deposition at the tooth apex, which is typically idiopathic in origin. It is asymptomatic. Patients with hypercementosis are not in need of any therapy for healthy teeth. Yet, when therapeutic requirements including the necessity for endodontic operations and It can make extraction more difficult and time consuming.

Keywords: Types; Morphology; Endodontic Treatment; Radiographic apex.

INTRODUCTION

The condition known as Hypercementosis, also known as cementum hyperplasia, is characterized by the excessive growth of tissue, either locally or throughout the surface of the root. The abnormal buildup of non-neoplastic cementum on healthy Cementum results in Hypercementum, which modifies root shape. This cement may have cellular or Hypocellular characteristics. Hypercementosis doesn't have a confirmed etiology. Although typically idiopathic, this syndrome is also influenced by various regional and systemic causes,

including Paget's disease, acromegaly, and vitamin A insufficiency.^{1,2}

Microscopic research on Hypercementosis has revealed thick cementum layers that are characterized by the parallel deposition of symmetric, extremely basophilic lines. On occasion, exterior cementum projections in focal locations can be used to identify anomalous cementum depositions.^{3,1} Due to Hypercementosis, which results in the production of numerous foramina throughout cementum deposition and gives rise to the apical deltas, the incorporation of blood vessels and nerve filaments in association with uneven apical cementum deposition may be a factor.

Types of Hypercementosis^{4,5}

The following types of Hypercementosis can occur at the root apex, on any portion of the root surface, or on the entire root surface.

1. Club-shaped.
2. Circular Cemental hyperplasia.
3. Diffuse Hypercementosis, in which the root takes on the shape of a club.

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4. Focal or localized Hypercementosis is confined to a single root surface.

Morphological type hypercementosis^{6,7}

- (a) Normal root
- (b) Diffuse type
- (c) Focal or local type, which is limited to isolated root surfaces
- (d) Shirt sleeve cut type, which does not involve the most apical part and only occurs in the periphery as a result of chronic periapical lesion

Even though mandibular molars were the most frequently damaged The upper incisors are rarely impacted by Hypercementosis, the canines show very little damage, and Lower incisors don't have any occurrences of Hypercementosis. This is consistent with the current instance, in which Hypercementosis did not impact the anterior teeth.⁸⁻¹⁰

Studies on the characteristics, frequency, and severity of Hypercementosis may be found in the literature. Although its effects are mentioned, endodontic treatment challenges or the unique characteristics of teeth exhibiting this modification are rarely mentioned. In order to better understand how to treat teeth with Hypercementosis while still taking into account biological factors, we compared the approach used in standard endodontic therapy with the approach to be implemented.¹¹⁻¹⁴ With a frequency of 4.9% in population⁵, Hypercementosis could well be regarded as a relatively frequent occurrence, and the dentist should be aware of its impact on the care given to teeth impacted by this modification.

The dentin canal is usually more than 1 mm well above radiographic apex in Hypercemented teeth, and this cementum might not be favorable to endodontic tools, making it challenging for endodontic practitioners to accomplish the right shaping and filling margins.¹⁴⁻¹⁶ It is critical to stress that endodontic failure results from the retention of polluted or inflammatory tissue in the root canal when the root canal is shaped and filled below the recommended limits.^{17,18,6}

Pinheiro et al.² pointed out that it may be challenging to adequately shape and fill the canals of Hypercemented teeth because the cementum may not be conducive to endodontic instruments. It is the retention of either a polluted area or inflamed tissue within the root canal may result from root canal shape and filling below the appropriate limit, which may contribute to the

development of chronic apical periodontitis that is resistant to endodontic treatment. As a result, Hypercementosis might directly affect how well a treatment works.^{3,8}

The persistence of a contaminated area or inflammatory tissue inside the root canal, which results in the failure of endodontic therapy, is something that should be highlighted in this respect. As a result, it is suggested that clinical Hypercementosis may have a direct impact on root canal therapy since the physician must be aware of the limits for shaping and filling root canals.^{19,20,21}

Suter et al.⁵ pointed out that the Hypercementosis induced unevenness of the root surface may have encouraged bacterial contamination, resulting in regional bone loss, noticeable gingival recession, and an overall poor prognosis for the impacted teeth. Moreover, non-pathologic Hypercementosis is accompanied with intact lamina dura and Peridontal membrane space, whereas a clear break in their continuity shows linked chronic inflammation.^{7,11}

These morphological traits could explain why it is difficult to determine the working length radiographically in teeth with Hypercementosis by relating the external architecture of the apical third to the diameter of the primary foramen or the number of apical foramina. According to the literature, surgical removal of irritants including tissue, cellular, and bacterial remains enhances tissue healing, with all other case variables being non contributory.^{22,23}

According to Barros,⁶ Hypercementosis is related with an increased percentage of secondary canals, accessory canals, and apical deltas as well as an apical third constriction linked to a deviation from the main canal's original route. It was underlined by the author that these changes to the internal anatomy of the apical third of teeth with Hypercementosis might not be seen on radiographs, which could make endodontic treatment more difficult.

Perhaps the earliest author to highlight the importance of pathological cementum formation in endodontics was Coolidge.¹⁰ He claims that cementum formation would impede with the removal of pulp and the treatment of periapical inflammation, with cementum deposition caused by either periodontal aggression or functional trauma.

CONCLUSION

Not all the canals are same particularly when

there is abnormality like Hypercementosis. The Cementum Dentin Canal (CDC) junction is a crucial anatomical factor that the endodontist must be aware of that in order to assess the effectiveness of endodontic treatment. The dentin canal is typically more than 1 mm beyond the radiographic apex in Hypercemented teeth, also this cementum might not be receptive to endodontic tools, making it challenging for endodontic practitioners to achieve correct shaping and filling margins. It is critical to stress that endodontic failure results from the retention of polluted or inflammatory tissue in the root canal when the root canal is prepared and filled below the recommended limits.

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