

Relationship Between Third Mandibular Molar Angulation and Distal Cervical Caries in the Second Molar

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Abstract: Third lower molar partially erupted is commonly encountered in dental practice. This situation challenges clinicians with the dilemma whether to remove or to monitor it, because this molar can cause pathology of the adjacent second molar. The aim of this retrospective study is to evaluate the relationship between third mandibular molar and distal cervical caries in second molar. This retrospective study analyzed 55 digital orthopantomograms of adult patients and a total number of 95 mandibular third molars were assessed for eruption status, angulation, radiographic evidence of caries or restoration in the mandibular third molar, and radiographic evidence of caries or restoration in the distal surface of the mandibular second molar. The distal cervical caries in second molar is associated with fully erupted and partially erupted wisdom molar in horizontal, mesioangular and vertical position and less with presence of caries in third molar. There are caries lesions in distal second molars in mesioangular position when adjacent third molar is caries free.

Key Words: Distal cervical caries, mandibular third molar, oral surgery

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Impacted teeth are those teeth which fail to erupt in dental arch within expected time.¹ Any tooth may become impacted, but the most frequently impacted teeth are third mandibular molars^{2,3} due to their particular topography. Impacted mandibular molars are directly or indirectly associated with numerous disorders in the mouth,^{4,5} and this is the reason why extraction of third molars was considered prophylactic with or without symptoms, as a result of expected complications.⁶ Nowadays, the prophylactic removal of

an asymptomatic mandibular molar in adults is questionable,^{7–10} and clinical decision making of extraction should be based on the relative benefits and harms for the patient.¹¹

Dentist must answer to an important question what is the risk of retained wisdom teeth is in future for development of any pathology if left untreated.¹²

It is commonly encountered in dental practice a third lower molar partially erupted. Mesioangular wisdom teeth which are partially or fully erupted have been associated with the development of caries in the distal aspect of the corresponding second molar,¹² as a result of food impaction between these molars and difficulties in cleaning. Distal caries in a second molar is more difficult to detect clinically in the presence of a partially erupted third molar (Fig. 1A), usually they need an x-ray to be identified (Fig. 1B). Bitewing x-rays are needed for detection of caries on approximal surfaces, especially of small caries,¹³ and they are used for detecting and monitoring the disease. Panoramic x-rays, conventional or digital, are not sufficient for diagnosis of proximal caries,¹⁴ and bitewings are still the state-of-the-art in diagnosing carious lesions in clinically inaccessible approximal surfaces.¹⁵ If these lesions remain undetected, caries progress and can lead to the need for root canal treatment or extraction. According to different authors, presence of caries on distal aspect of second molar is associated with position¹⁶ and angulation of third molar.¹⁷

The aim of this retrospective study is to evaluate the relationship between third mandibular molar and distal caries in second molar.

METHODS

This retrospective study analyzed 55 high-quality digital orthopantomograms (OPGs) x-ray of adult patients. The patients were between 20 and 65 years old and addressed to a private office in Constanta, Romania. The inclusion criterion in the study was the presence of mandibular third molar and the adjacent second molar. The exclusion criterion was absence of second molar when third molar was present and coverage crown on second molar. A total of 95 mandibular third molars were examined.

Assessment of mandibular wisdom tooth was done according to the eruption status (fully erupted, partially erupted, or unerupted), degree of impaction according to Pell and Gregory classification, angulation based on Winter's classification, radiographic evidence of caries or restoration in the mandibular third molar, radiographic evidence of caries, or restoration in the distal surface of the mandibular second molar.

The Pell and Gregory classification considers levels A, B, and C based on the position of the mandibular third molar in relationship with the mandibular ramus and occlusal plane of the second molar.¹⁸ When the most coronal part of the mandibular third molar was placed superior to the occlusal plane of the mandibular second molar, the adjacent mandibular third molar was classified as level A. When the most coronal part of the mandibular third molar was located between the cemento-enamel junction (CEJ) and occlusal

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