Abstract Mina Hayawi

Background: Distal surface caries (DSC) in the mandibular second molar teeth is a common outcome of impaction of the adjacent third. The current Dutch clinical guideline recommends the early removal of partially emerged/impacted third molars, in particular third molars with a mesioangular or horizontal angulation.
Objective: To investigate the prevalence of DSC in the mandibular second molar teeth adjacent to a partially emerged/impacted mandibular third molar in the Netherlands.
Methods: Radiographs that had been taken during dental appointments for routine examinations, mandibular third molar assessments, or caries screenings at the Academic Centre for Dentistry Amsterdam (ACTA) were assessed. These radiographs involved a total of 250 patients. The following parameters were evaluated: gender, age, socioeconomic status, the radiographic state of the distal surface of the mandibular second molar teeth, lamina dura (LD) loss distally to the mandibular second molar teeth, third molar tooth angulation/orientation, molar-to-molar contact point and the number of decayed, missing and filled teeth (DMFT) on the radiograph.
Results: The prevalence of DSC in the mandibular second molar teeth was 26% in the study population in the Netherlands. Risk factors associated with the development of DSC were: emerged/impacted third molars with a mesioangular or horizontal angulation, lamina dura (LD) loss of ≥2mm and increased modified DMFT-score (decayed, missing or filled teeth). The relation between molar-to-molar contact point of the third molar in relation to the CEJ of the mandibular second molar teeth and the prevalence of DSC almost reached statistical significance (p=0.052). No significant relations were found between DSC and the side of the mandible where the impacted third molar was located, and the gender, age or socioeconomic status of the patient.
Conclusion: DSC in the mandibular second molar teeth adjacent to a partially emerged/impacted third molar has a relatively low prevalence in the Netherlands, problably due to the early removal strategy of partially emerged/impacted third molars. DSC was significantly associated with the orientation type of the third molars, the relationship of the third molar molar-to-molar contact point with the CEJ of the adjacent second molar teeth and the lamina dura (LD) loss distally to the mandibular second molar teeth.