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Distal cervical caries in the mandibular second molar: an indication for the prophylactic removal of third molar teeth? Update

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Abstract

In 2005 we reported the clinical findings of 100 patients who had mandibular third molars removed because of distal cervical caries in the mandibular second molar. The aim of this follow-up study was to find out whether the findings in a new group of patients corroborate those of our previous study. We report on the clinical features of 239 patients (mean (SD) age 32.1 (7.85) years, range 20–65) who had 288 mandibular third molars removed because of distal cervical caries in the second molar. Patients had better dental health than average, and 67% had a DMF (decayed, missing, or filled) score of 5 or less. In 89% of third molars the mesial angulation was between 40° and 80°. Distal cervical caries in second molars is a late complication of third molar retention. The prophylactic removal of a partially erupted mesioangular third molar will prevent distal cervical caries forming in the second molar tooth.

Keywords: Third molar; Indications; Distal cervical caries

Introduction

Current UK clinical guidelines for the management of third molars advise against the prophylactic removal of healthy impacted teeth,[1–3] and suggest that there is no reliable evidence to support it. Consequently, current practice is to remove teeth only if they cause disease.[4]

Partially erupted, mesioangular impacted mandibular third molars that are in contact with the second molar around the amelocemental junction put the second molar at risk of developing distal cervical caries (Fig. 1),[5–8] which is a carious lesion that forms on the distal cervical root surface of the second molar. Mesioangular impaction of the third molar on to the second molar creates a deficient gingival collar and exposes the distal root surface of the second molar to the oral environment. The area is difficult to keep clean so dental plaque forms and persists, and results in distal cervical caries in the second molar. The third molar must be removed to enable restoration of the second molar, but in certain cases this might not be possible, and the second molar may also need to be extracted.

In 2005 we reported on 100 patients who had mesioangular impacted third molars removed because of the presence of distal cervical caries in the second molar.[8] They tended to be 5 years older than the average for patients having third molars removed and their dental health was also better than average.[8] We suggested that these patients presented with distal cervical caries because earlier in life they had not had any serious third molar disease such as pericoronitis, which would have indicated removal of the tooth.[8] Consequently, retention of these teeth promotes the formation of distal cervical caries in the second molar.

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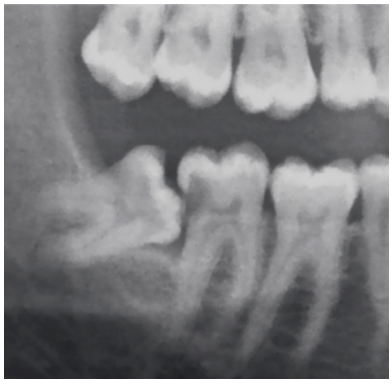

Fig. 1. Radiograph of distal cervical caries in the mandibular second molar with associated impacted mesioangular third molar.

The aim of this follow-up study was to assess a further group of patients with distal cervical caries in their mandibular second molars to find out if the findings corroborated those of our 2005 study.

Methods

We evaluated 239 patients who had mandibular third molars removed because of the presence of distal cervical caries in the second molar. Data were prospectively collected over a 24-month period.

The variables that we recorded were sex, age, angulation and eruption status of the third molar, DMF (decayed, missing, or filled) score, and the proximity of the third molar to the amelocemental junction of the second molar.

As in our previous study, the DMF score was used as a measure of dental health. In calculating the score we compensated for, and excluded, the second molar if distal cervical caries was the only lesion associated with the tooth. The mesial angulation of the third molar was calculated by measuring the angle of intersection between the mandibular occlusal plane and the occlusal plane of the third molar. This angle equates to the mesial inclination of the third molar relative to the second molar.[8]

Results

The study included 239 patients (142 men and 97 women). In 190 patients, a single second molar was affected, and both were affected in 49 (bilateral disease). In total, 288 mandibular third molars were extracted, 144 from each side.

The mean (SD) age of the patients was 32.1 (7.85) years (range 20–65) (Fig. 2). A total of 161 patients (67%) had a DMF score of 5 or less; 56 (23%) had a score of between 6 and 10, and 22 (9%) had a score of 11 or more. Of note, 50 patients (21%) had a compensated DMF score of zero as the only lesion was the distal cervical caries associated with the second molar tooth.

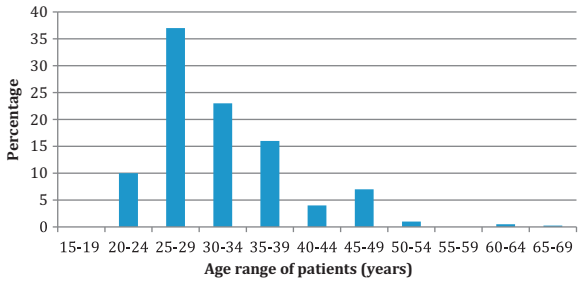

Fig. 2. Age range of patients (years) compared with percentage number of patients. Mean (SD) age 32.1 (7.85) years (range 20–65).

All 288 teeth were partially erupted. Radiographic examination showed that all were in contact with, or close to, the amelocemental junction of the second molar, and all were mesioangularly impacted against the second molar. Mesial angulations of the third molars were grouped accordingly: 255 (89%) had an angulation of between 40° and 80°; in 28 (10%) it was less than 40°, and in 5 (1%) it was more than 80°.

Discussion

To our knowledge, distal cervical caries in the second molar has not been reported without an associated mesioangular third molar, and we have not observed it. Although caries can form on the distal aspect of any tooth, distal cervical caries is unique as it is seen at the amelocemental junction and is, in effect, a variant of root surface caries. We think that it would not develop without an associated impacted third molar.

Concern has been raised that in some studies, radiographic cervical burnout may have been misdiagnosed as distal cervical caries resulting in a higher reported incidence.[9] In this study, as in our previous study, patients whose radiographic images suggested cervical burnout were excluded from the study (Fig. 3).

A factor that is associated with the risk of distal cervical caries developing in the second molar is the angulation of the third molar. This type of second molar caries is seen

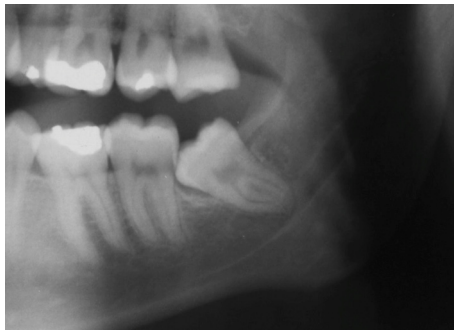

Fig. 3. Radiograph of radiographic distal cervical burnout potentially misinterpreted as distal cervical caries.