

Radicular Grooves in Maxillary Lateral Incisor: Case Report

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The authors present a case report of a radicular groove in a maxillary lateral incisor in a 58-year old male patient. Endodontic and periodontal treatment was not carried out and therefore, avulsion of the tooth was indicated. The radicular grooves were very deep with pulp chamber communication.

Key words:radicular groove, maxillary lateral incisor.

Introduction

Radicular grooves are morphological defects which are found most frequently in maxillary anterior teeth and are a predisposing factor for periodontal disease (Lee et al., 1968; Everett and Kramer, 1972; Meister et al., 1983; Pécora et al., 1991; Pécora and Cruz Filho, 1992).

Withers et al. (1981) studied the incidence of lingual gingival grooves in 2099 teeth from 531 patients and detected the presence of radicular grooves in 2.3% of the central and lateral maxillary incisors examined. Periodontal problems were associated with the presence of radicular grooves.

Pécora et al. (1991) examined in vitro 500 maxillary central incisors and 421 maxillary lateral incisors and reported the presence of radicular grooves in 2% of the central incisors and 2.6% of the lateral incisors. All of the radicular grooves of maxillary lateral incisors were located on the lingual surface.

Pécora and Cruz Filho (1992) examined the incidence of radicular grooves in the upper incisors of 642 patients and found this morphologic defect in 3.9% of the patients. Most of the radicular grooves were found on the lingual surface of the maxillary lateral incisors (3%). The maxillary central incisors showed radicular grooves on both the buccal and lingual surfaces (0.9%). The radicular grooves began on the lingual surface of the crown of the maxillary lateral incisors and extended to the root. They may reach the cervical region or the medial region and in many cases reach the apical region.

Case report

A 58-year old white male was referred to the dental clinic with bleeding gingiva. Clinical examination showed the presence of a fistula in the gingival buccal area of the left maxillary lateral incisor and the presence of lingual crown grooves. The radicular grooves extended from the crown to the deepest part of the periodontal pocket which suggested the possibility of its extension to the apical region of the root. Periodontal examination showed the presence of a deep periodontal pocket up to the middle of the root. The test for pulp vitality using cold (dichlorodifluormethane) was negative. X-ray showed the presence of a radiolucent area around the root of the tooth (Figure 1).

Due to the poor conservation of the teeth, the high incidence of caries and poor buccal hygiene, this tooth was avulsed. Figure 1 shows the lingual surface of this tooth with the radicular grooves visible from the crown to the apical region.

Scanning electron microscope of the extracted tooth showed that the deep radicular grooves communicated with the pulp chamber (Figure 2).



Figure 1 - Left, Lingual surface of tooth with radicular grooves visible from the crown to the apical region. Right, X-ray showing the presence of a radiolucent area around the root of the tooth.



Figure 2 - Deep radicular grooves communicating with the pulp chamber shown by scanning electron microscope.

Discussion

Radicular grooves affect a large number of patients and ought to receive more attention from researchers. Conservation of a tooth with radicular grooves is very difficult due to various factors: extension and depth of sulcus, presence of periodontal pocket and endodontic involvement.

The presence of a radicular groove is easily detected in the crown, but it is very difficult to detect in the root because the radiographic image is normally in the same direction as the pulp chamber, superimposing the image. Figure 1 clearly shows the radicular groove in the crown. In this case, scanning electron microscopy showed the depth of the groove which showed that if the radicular canal had been treated, there would have been a poor prognosis.

Professionals must be aware of the possible existence of radicular grooves in order to insure correct diagnosis and a better prognosis and to instruct the patient on the necessity of good oral hygiene to prevent periodontal problems (Pécora et al., 1991).

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