

Vertical Root Fracture in Maxillary First Molar: A Case Report

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Abstract

Vertical root fracture in non endodontically treated teeth usually occurs in teeth in the mandibular arch and usually occurs in the molars and premolars. The verticle fracture usually occur in females of Chinese descent. Here we have the verticle fracture in a maxillary first molar and on a Chinese male.

Case Presentation

Vertical root fracture (VRF) is a phenomena that is relatively rare in non endodontically treated teeth. VRF in non endodontically treated teeth occurs primarily in persons of Chinese descendency [1]. The VRF usually occurs in the mandible and not in the maxilla. The VRF usually occurs mostly in mandibular first molars due to their flat roots with smaller mesiodistal diameter which is more prone to fracture.

Usually the patient has intact dentition with no missing teeth or large restorations. VRF is two times higher in females than in males and may be due to excessive masticatory forces due to chewing and can be spontaneous. Studies have shown that VRF occurred primarily in females and that the tooth types with the highest VRF were the upper canines, the mandibular second premolar, and the mandibular first molar. Conversely with endodontically treated teeth the maxillary first molar had the most VRFs [2,3]. This is usually due to excessive condensation or post placement, most were mandibular molars [4]. Here we present a case of vertical root fracture of the maxillary right first molar.

Patient description and chief complaint

The patient was a 44 year old Chinese male seen in the NYU College of Dentistry Dental Clinic. No specific medications, no allergies to medication, no surgery within the past three years, no current infectious disease. Vitals were 139/80/83. Past dental history revealed that he has regular periodic examinations and periodontal maintenance. His chief complaint was a severe spontaneous pain around the right maxillary first molar (#3), especially when biting down. Patient claimed that he bit on a hard object while eating 2 years previously. He immediately noticed that there was pain on #3. The pain subsided and there was no further pain after the incident until recently. Patient said he noticed cracks on the enamel of #3 and was notified by his previous dentist, but no further treatment was rendered since it was asymptomatic. Patient complained of severe pain 5 days prior to his clinic visit is it as an emergency patient. There was severe pain on percussion but no gingival pain on palpation.

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Figure 1: Periapical after extraction.

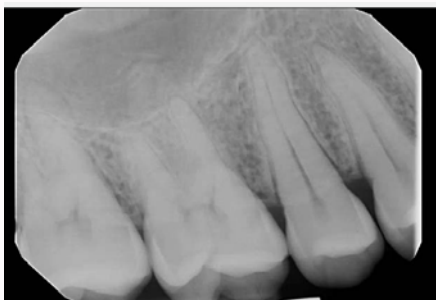


Figure 2: Periapical depicting vertical root fracture.

No test for a possible endodontic problem was performed. Posterior periapical radiograph was taken (Figure 2). A clear fracture line was noticed going from the occlusal surface extending all the way to the floor of the pulp chamber. Clinical exam using translucent light confirmed the fracture of the tooth. The patient was referred to oral surgery for extraction. This was a rare case of vertical root fracture occurring in the maxillary first molar instead of a mandibular molar or cuspid.

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