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Case Report

Extra Third Root "Radix Entomolaris" was Found Accidently during Extraction of Mandibular Permanent First Molar: Case Report

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Abstract

Introduction: The mandibular permanent first molar normally has two well-characterized roots, mesial and distal roots. In 1844, Carabelli was the first to refer to the presence of supernumerary third root as a frequent variation of mandibular first molar which is located either lingually (radix entromolaris) or buccally (radix paramolaris). The presence of a third root in the mandibular first molar is associated with certain ethnic groups.

Case Report: 37 years old Saudi pregnant woman referred from GP for extraction of unrestorable decayed tooth, right mandibular permanent first molar. She was in the 6th month of pregnancy and no other significant medical or surgical history. Patient has been advised that an immediate tooth extraction is the urgent approach as a definitive therapy to stop progression of infection and then planned to be covered by antibiotics over the next 5 - 7 days. Two roots were completely removed "mesial and distal with intact root tips". Crack- sound heard during movement of the tooth that indicated there is a fracture that was related to the tooth or might be to the alveolar bone. Afterwards, the surgical site inspected and it has been noticed suddenly that there was an extra root in the lingual area of the socket. The lingual root luxated and delivered by using small Coupland elevator.

Discussion: A study was done in 2019 to determine the prevalence of three rooted mandibular permanent first and second molars in the Saudi population. The overall prevalence of the extra roots are 3.05 and 1.48, respectively. A typical clinical issue presented by three-rooted molar is the potential break of the disto-lingual root during extraction. Other clinical difficulties envisaged would relate to endodontic and orthodontic procedures, where the extra root would render a challenge in access because of its curvature and difficult movement because of its presence.

Conclusion: An unusual number of roots can be found in treatment of the mandibular permanent first molar, as we have found in this case report. Visual checking of the surgical site is a highly important step after tooth extraction regardless the previously known number of roots and anatomy of the tooth to confirm there is no root left after extraction that can lead to improper management of the infection in the surgical site and which might interfere with the optimal healing process.

Keywords: *Radix Entomolaris; Mandibular First Molar; Tooth Extraction; Extra Root; Unusual Root Number*

Introduction

The mandibular permanent first molar typically has two well-defined roots: a mesial root characterized by a flattened mesiodistal surface and widened buccolingual surface, and distal root, which is usually straight [1].

In 1844, Carabelli was the first to mention the presence of supernumerary third root as a frequent variation of mandibular permanent first molar located either lingually (radix entromolaris) or buccally (radix paramolaris) [2].

The occurrence of a third root in the mandibular first molar is associated with certain ethnic groups. The literature reports an incidence of less than 5% in white, African, and Eurasian populations, whereas in populations with Mongoloid traits, such as Chinese, Eskimo, and American Indian, this anatomic variation occurs with a 5% - 40% frequency [3-7].

The clinician should be aware of the unusual root morphologies in the mandibular permanent first molars [8].

In this report we found incidentally unusual number of roots " three roots" during extraction of mandibular permanent first molar that done with pregnant woman.

Case Report

37 years old Saudi pregnant woman and referred from GP for extraction unrestorable decayed tooth, right first mandibular permanent molar. She was in the 6th month of pregnancy and no other significant medical or surgical history. Patient has told that she complains of severe continuous pain last few days. She was examined clinically when there was severe pain during percussion that indicates an infection was in the acute phase. No swelling or pus collection around the tooth. Patient has been advised for immediate tooth extraction as a definitive therapy to stop progression of infection and planned to be covered by antibiotic next 5 - 7 days. She has been recommended and educated the importance of taking periapical radiograph for giving information about the peri-apical region and evaluation of roots shape as well. She has been informed that amount of radiation will be safe to the fetus because the apron is working well for protection, and the radiation amount of digital radiograph is minimal, particularly the development of the fetus is completed. However, she rejected a radiograph to be taken because she was highly concern regarding the safety of the fetus and she accept to be treated under her responsibility. Informed refusal was signed and she accepted to be treated without taking pre-operative radiographic image.

The tooth extraction managed under local anesthesia by using the local anesthetic xylocaine with epinephrine. Inferior alveolar nerve, lingual, and buccal nerves were all anesthetized.

Extraction was done by using luxator and lower right molar forceps. Two roots were completely removed "mesial and distal including the apical third". Crack- sound was heard during movement of the tooth while that indicated there is a fracture that related to the tooth or might be to the alveolar bone. Afterwards, the surgical site inspected and it has been noticed incidentally there was extra root in the lingual area of the socket. The lingual root luxated and delivered using small Coupland elevator (Figure 1 and 2).

Figure 1: *The arrow is pointing towards the socket of the third lingual root.*

Figure 2: *It can be noticed the curvature of the lingual root.*

Curettage done gently to be sure no granulation tissue is left and to accelerate the healing process. 500 mg amoxicillin Q8h prescribed for using from 5 - 7 days and paracetamol 500 mg Q8h for 3 - 5 days. She has been advised to be followed post operatively in short term and long-term period " after delivery ", to exclude any other problem in the future.

Discussion

For performing effective dental treatment, detailed knowledge of the anatomy and morphology of the root is important [9].

Study conducted in 2019 to assess the prevalence of three rooted mandibular permanent first and second molars in Saudi population. The overall prevalence of the extra roots is 3.05 and 1.48, respectively [10].

A common clinical problem posed by three- rooted molar is the possible fracture of the disto-lingual root. Considering its divergent and curved form, the extra disto-lingual root would be expected to fracture during extraction. This incidence is probably due to its curvature being in the line of extraction movements and withdrawal. Although two root tips were left in situ in this study, no subsequent clinical problem was encountered. Other clinical difficulties envisaged would relate to endodontic and orthodontic procedures, where the extra root would render a challenge in access because of its curvature and difficult movement because of its presence [11].

Extraction of permanent teeth is performed for several reasons, including caries, periodontal disease, orthodontic treatment, traumatic injuries, prosthetic indications, and tooth impaction [12]. However, caries and periodontal disease have been shown consistently as the two main reasons for tooth loss [13-16].

The most commonly extracted teeth were the mandibular and maxillary first molars [17].

Immediate removal of the source of infection through tooth extraction or endodontic treatment has been advocated [18,19].

In general, the national consensus states that dental care can be safely delivered during all trimesters of pregnancy [20].

Data from the obstetrics and periodontal therapy trial showed that women who receive fillings or who undergo extractions or root canal treatment during the second trimester of pregnancy don't experience higher rates of adverse birth outcomes compared with women who don't undergo these dental treatments [21].

The 2012 consensus statement and other guidelines advise that radiographic imaging is not contraindicated during pregnancy [20]. As with all patients, a thyroid collar and abdominal apron should be used [22].

However, Research also suggests that misperceived barriers and inadequate knowledge about evidence - based perinatal dental care on the part of both patients and health care providers also play a role in underutilization [23-26].

If the patient refuses the proposed treatment, the dentist must inform the patient about the consequences of not accepting the treatment and get a signed informed refusal. However, obtaining an informed refusal does not release the dentist from the responsibility of providing a standard of care [27].

Our patient in this report she has been informed the importance of radiographic follow up even if she preferred to be taken after the fetus delivery to rule out any abnormality for instance periapical granuloma or cystic lesion that related to the offending tooth.

Conclusion

During extraction of mandibular permanent first molar, unusual number of roots can be found as we have seen in this case report. Checking the surgical site visually is highly important step after tooth extraction regardless the previously known number of roots and anatomy of the tooth in order to confirm there is no extra root left that can cause infection in the surgical site and might interfere with normal healing process.

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