

Uncommon Dental Anomaly: Three-Rooted Mandibular Molars in an Eight-Year-Old Child

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Abstract

This case report presents a rare anomaly observed in an eight-year-old boy of mixed ethnic background. The patient exhibited mandibular left and right permanent first molars, as well as deciduous mandibular first and second primary molars, each possessing three roots. The occurrence of mandibular molars with three roots, known as trifurcation, is relatively uncommon, particularly in deciduous teeth. This case highlights the challenges posed by such anomalies and underscores the importance of early detection and tailored treatment strategies.

Keywords: Extra root, Anomaly, Molar.

INTRODUCTION

The term “three-rooted permanent mandibular first molar (PMFM)” is broad and not as precise as other terminology based on root count. Consequently, many researchers prefer the more well-known term “Radix Entomolaris (RE).” The word “Radix” translates to “root” and “Ento” means “inside,” which together describe “the root emerging from the lingual side.” In comparison, Radix Entomolaris refers to an additional root that originates from the lingual root trunk of the molar. The prefix “Para,” meaning “beside,” is associated with the buccal side of the mouth. Therefore, Radix Paramolaris (RP) is defined as a root that originates from the buccal side of the molar. Both RE and RP describe variations of three-rooted PMFMs.¹

Dental anomalies, though uncommon, provide valuable insights into human variation and

present unique challenges for dental professionals. Trifurcation, the presence of three roots in mandibular molars, is a rare occurrence, especially in deciduous teeth. We present a case of an eight-year-old boy with trifurcated mandibular molars, emphasizing the significance of early detection and specialized care.

The occurrence of two distal roots is uncommon but does happen. When this macrostructure appears lingually, it was initially documented by Carabelli in 1844 and later termed Radix entomolaris by Bolk in 1915.^{2,3} De Moor et al reported an extra root that can be present distolingually.⁴

According to Tratman, dental anomalies are less prevalent in primary dentition three-rooted mandibular molars are infrequent in primary dentition, with a prevalence of less than 1%, but are more common in permanent dentition. Additionally, he reported that these anomalies has racial correlation.^{5,6}

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CASE PRESENTATION

An eight-year-old boy presented to the dental clinic for a routine examination. The patient's medical history was unremarkable, and he was asymptomatic. Clinical examination revealed the presence of mandibular left and right permanent molars, as well as deciduous mandibular primary molars, each exhibiting three roots. Radiographic imaging confirmed the trifurcation pattern in both permanent and deciduous molars.

DISCUSSION

In the realm of dental anatomy, anomalies occasionally arise, presenting unique challenges and fascinating insights into human variation. Recently, a rare case emerged involving an eight-year-old boy of mixed ethnic background, with a Caucasian mother and a Black father, who exhibited a peculiar dental anomaly: mandibular left and right permanent molars, as well as deciduous mandibular primary molars, each possessing three roots.

The occurrence of mandibular molars with three roots is relatively uncommon, with the majority of individuals typically possessing molars with two roots. This anomaly, known as "trifurcation," is even rarer in deciduous teeth, making the case of this young boy particularly noteworthy.

The mandibular molars are critical for efficient mastication, with their roots firmly anchored in the jawbone to provide stability and support. Typically, mandibular molars are characterized by two roots – a mesial root and a distal root. However, in this unique case, each molar exhibited an additional root, resulting in a trifurcation pattern.

The presence of three roots in mandibular molars can pose challenges for dental professionals during procedures such as root canal treatments or extractions. The intricate anatomy requires careful navigation to ensure thorough cleaning and effective treatment while minimizing the risk of complications.

Moreover, the occurrence of trifurcation in deciduous mandibular molars adds another layer of complexity. Deciduous teeth serve as placeholders for permanent teeth and play a crucial role in the



development of the dental arch. Anomalies in deciduous teeth may impact the eruption and alignment of permanent teeth, highlighting the importance of early detection and intervention.

The etiology of dental anomalies, including trifurcation, is multifactorial and may involve genetic, developmental, and environmental factors. While the specific cause of this rare anomaly in the case of the eight-year-old boy remains unclear,

further research into the genetic and environmental influences on dental development may provide valuable insights.

In clinical practice, early detection of dental anomalies is essential for timely intervention and management. Routine dental examinations, including radiographic imaging, can aid in the identification of aberrant dental anatomy and guide treatment planning. For individuals with

trifurcated molars, specialized dental care may be necessary to address unique challenges and ensure optimal oral health outcomes.

As our understanding of dental anatomy continues to evolve, cases like that of the eight-year-old boy serve as reminders of the remarkable diversity within the human dentition. By embracing the complexity of dental anomalies and advancing our diagnostic and therapeutic approaches, dental professionals can provide comprehensive care tailored to the individual needs of each patient.

Recent research has investigated the correlation between the occurrence of supernumerary roots in deciduous and permanent molars. Findings indicate that deciduous mandibular second molars and permanent mandibular first molars share the same molar field due to their concurrent development and similar crown morphology. This concept was initially suggested by Butler.⁷⁻⁸ In a study by Song *et al.*, the likelihood of finding extra roots in both second primary and first permanent mandibular molars was found to be 94.3%.⁹

CONCLUSION

The case of an eight-year-old boy with trifurcated mandibular molars underscores the rarity and complexity of dental anomalies. This anomaly highlights the need for vigilance in dental examinations and the importance of tailored treatment strategies to address unique anatomical variations. As our understanding of dental anatomy evolves, each anomaly serves as a testament to the remarkable diversity within the human dentition.

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