

Atypical Manifestation Of Macrodonia Involving Maxillary Central Incisors.

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Abstract

Macrodonia is defined as an abnormality in tooth size that manifests clinically as a tooth of normal morphology but of unusually larger size, with a single root and pulp chamber. This dental anomaly is also known by various names such as megalodontia, megadontia, dental gigantism, megadontism, megadonty, or macrodontism. Functional and aesthetic discrepancies may arise in affected individuals resulting in lowering the quality of life. It may be associated with numerous syndromes and medical conditions. Macrodonia is an uncommon dental anomaly that can present in both primary and permanent dentition. It has often been reported to occur concomitantly with other dental anomalies. Three types of macrodonia are recognized: true generalized macrodonia, relative generalized macrodonia and macrodonia involving a single tooth. This case reports an unusual presentation of macrodonia involving maxillary central incisor and possible treatment options.

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I. Introduction

Macrodonia is an uncommon dental anomaly characterized by the presence of teeth larger than the average size. It is estimated to affect a relatively small percentage of the global population, ranging from 0.03% to 1.9%. [1] When macrodonia affects the anterior teeth, it can lead to various issues such as crowding, aesthetic concerns, and the buildup of plaque due to surface notching. Additionally, it may result in challenges related to tooth alignment and reducing overjet.

In most cases, treatment for macrodonia is not deemed necessary unless there are specific aesthetic or functional reasons to address it. When such reasons exist, a specialized approach involving restorative and orthodontic treatment planning is typically required.[2]

Macrodonia can be classified as:

- (i) True generalized macrodonia where all teeth are larger than normal. The condition is extremely rare and most often seen in cases of pituitary gigantism.[3]
- (ii) Relative generalized macrodonia, where teeth might be normal or only slightly larger in size but erupts in small jaws. This condition is also called pseudo-macrodonia and can happen when a child inherits jaw size from one parent and tooth size from the other.[4]
- (iii) Macrodonia of a single tooth, which involves a normal tooth in every aspect, aside from size. It is a highly unusual variant when an isolated tooth displaying macrodonia resulting from gemination or fusion of two teeth.[4]

II. Case Report

A 9-year-old boy attended to the Dental department, for a chief complain of extra teeth. The medical history was not contributory. The patient's family history investigated and did not disclose any hereditary

anomalies, dental or otherwise. The intraoral examination revealed a mixed dentition period showing deep bite, crowding and presence of over retained deciduous central incisor, which required extraction. FIGURE.1[A-F]The clinical and radiograph examination confirmed an enlarged maxillary central incisors and a normal developing dentition, confirming the diagnosis of a macrodonia involving maxillary central incisors. FIGURE.2 [A,B]Other dental anomalies were absent in the present case. After extraction of over retained tooth, The patient is being followed up for clinical and radiographic evaluation and for monitoring development of dentition for orthodontic evaluation.

III. Discussion

Macrodonia is a dental anomaly characterized by the abnormal enlargement of one or more teeth.[3] On the other hand, double teeth refer to irregularities in tooth structure, typically involving teeth that are fused or geminated. These anomalies can become evident during childhood, affecting both primary and permanent dentitions. They may lead to various clinical issues, including orthodontic problems like crowding, misalignment of neighbouring teeth, and concerns related to gum health. Double teeth are also more susceptible to developing cavities. Moreover, the aesthetic impact of these dental irregularities can have psychological and social consequences for the patient, potentially affecting their overall well-being.[5]

Due to the functional and aesthetic challenges associated with these conditions, dental intervention is often necessary to enhance the patient's quality of life. The change in the morphology of this tooth and also the concurring malocclusion problem may compromise the quality of the oral hygiene in a patient. [6] The management of such cases may require a combination of endodontic, restorative, surgical, and orthodontic treatments. In this case report, we present a specific instance of macrodonia involving a maxillary central incisor.

The typical mesiodistal crown dimension of permanent maxillary central incisors is approximately 8.5-9mm. [7] In the case of the patient under consideration, the mesiodistal crown dimension of the maxillary right central incisor measured around 10.01 mm, and the maxillary left central incisor measured about 10.02 mm, which is indicative of macrodonia or larger-than-normal teeth. It's worth noting that isolated macrodonia cases, particularly involving the maxillary teeth, are rare and have been infrequently reported in the existing literature.

Various factors have been linked to the development of macrodonia, including genetic, environmental, and endocrine factors. There is also a noted higher prevalence of macrodonia among individuals of Asian descent, Native Americans, and Alaskans. Additionally, males are more predisposed to developing macrodonia compared to females.[7]

The alteration in tooth morphology, coupled with associated malocclusion issues, can potentially compromise the patient's oral hygiene. Although the patient did not express aesthetic concerns, the presence of an over-retained deciduous central incisor, a deep bite, and crowding necessitated referral to an orthodontic clinic for treatment and the establishment of an ideal occlusion.

IV. Conclusion

An atypical case of an isolated macrodonia of a maxillary central incisor was reported here. The etiology and management of macrodonia could become clearer if more cases were reported in the future. Here we also point out the importance of the routine dental checkups and radiographic diagnosis to support the clinical findings with multidisciplinary input in the planning and management of macrodonia and double teeth in the primary and permanent dentition.

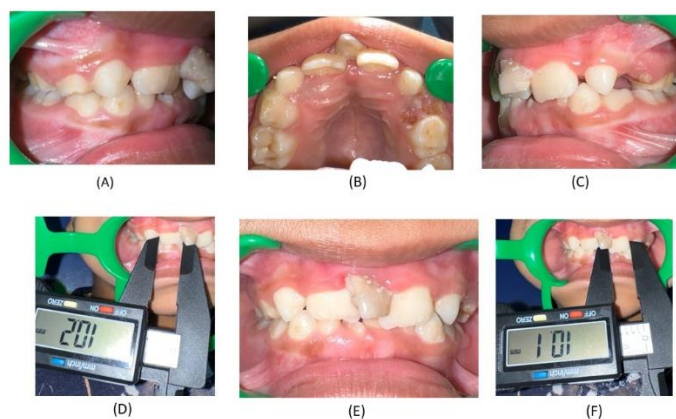


Figure 1. Intraoral Photographs(A,B,C,E) With Digital Caliper Measurements (D,F)



(A)



(B)

Figure2. Opg And Iopa Of The Patient (A,B)

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