

Impacted primary mandibular central incisors: case report

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Impaction of primary teeth is very rare especially in the maxillary anterior teeth. A tooth that fails to erupt into a normal functional position by the time it normally should, is considered impacted. The purpose of this article is to present a case of a 2 year and 4-month-old male with an impacted primary mandibular central incisors. Clinical examination did not reveal systemic diseases or trauma in the facial region. Clinical and radiographic examinations are described. Treatment consisted of a period of observation for 6 months and the extraction of the impacted primary mandibular central incisors. Eight months after the surgery, the permanent central incisors were erupted in the proper position.
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INTRODUCTION

Tooth impaction refers to situations where failure to erupt appears to be due to a mechanical blocking and the tooth remains unerupted beyond the normal time of eruption.^{1,2} Usually impacted teeth involve the permanent dentition, they are rare in the primary dentition and in most cases involve the second primary molars.^{1,4} The impaction may be primary, meaning that the teeth never have been erupted (also called primary failure of eruption), or it may be secondary, meaning that the teeth after eruption are reimpaired.³ Impacted teeth tend to be asymptomatic and are found on routine radiographic examination when the patient is in the mixed dentition or permanent dentition stage.⁵ Impaction is caused by systemic or local etiological factors.¹ Local factors reported as contributing to impacted primary teeth include: odontomas,^{6,7} odontogenic tumors,⁸⁻¹⁰ ankylosis,^{11,12} traumatic injury,^{13,14} and dentigerous cysts.^{10,15} In addition, impaction of the tooth can be the result of the absence of space in the dental arch, the presence of supernumerary teeth, malposition and malformation of

the tooth bud, dentomaxillofacial disharmony, or the occurrence of infectious processes in the eruption path.^{10,16-18} Impaction occurs because of some alterations in the dental follicle or periodontal ligament causing the termination of tooth eruption which in turn leads to ankylosis in the surrounding bone.^{2,4,5,17,18} Ankylosis has probably a leading role in the etiopathogenesis.^{4,16} In some cases etiology of tooth impaction is unknown or seems to have inheritance basis.^{3,18}

Impacted primary teeth may be associated with defects in development and eruption of the permanent successors, long-term observation is therefore necessary until the permanent successors erupt.¹⁸ Impacted teeth that erupt could be hypoplastic.¹⁸ Treatment methods for impacted primary teeth are extractions and observation.¹⁸ Most impacted primary teeth were extracted and a few erupted later following a more conservative approach.^{7,14,17} This report illustrates a case of impacted primary mandibular central incisors.

CASE REPORT

A 2 year 4-month-old male was referred from a health center to pediatric dental section at Hamad Medical Corporation with a chief complaint of unerupted primary mandibular central incisors. The mother reported no medical history of systemic diseases. Pregnancy and delivery were normal. Family medical history was unremarkable. The dental history obtained was non-contributory. The mother reported no history of intraoral infection or trauma. Extraoral clinical examination showed normal development and was non-contributory. Intraoral examination showed normal development of dentition characterized by the absence of the mandibular primary central incisors and a moderate enlargement in the labial aspect of the alveolar bone in the area of the missing teeth (Figure 1). The remaining intraoral structure was within normal limit. Intraoral

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Figure 1. Intraoral photograph showing uneruption of mandibular primary central incisors in an otherwise normal occlusion. Note the moderate enlargement in the labial aspect of the alveolar bone.

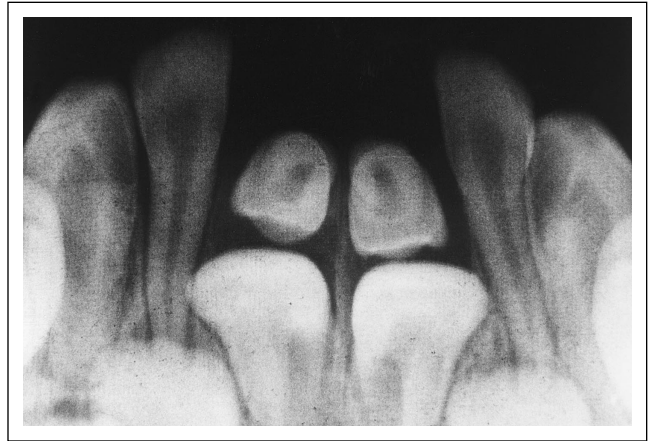


Figure 2. Occlusal radiograph showing mandibular primary central incisors in a horizontal bucco-lingual impaction.



Figure 3. Occlusal radiograph showing the eruption pattern of the permanent mandibular central incisors four months after the surgery.



Figure 4. Intraoral photograph showing the permanent mandibular central incisors in the proper position eight months after the surgery.

occlusal radiography of the mandible was performed to support the planning of the treatment. Radiograph revealed unerupted mandibular primary central incisors (Figure 2). The teeth were in a horizontal bucco-lingual impaction with no evidence of any cysts, odontoma or other abnormalities (Figure 2).

The treatment plan was a period of observation for 6 months followed by surgical removal of the impacted teeth. Radiograph in the recall visit showed no changes in the eruption pattern of the impacted mandibular primary central incisors. Patient was referred to oral surgery department where the impacted teeth were removed. Care was taken to maintain the integrity of the permanent central incisors to permit normal root formation and eruption.

After surgery, the patient was advised to return periodically at four-month intervals for clinical and radiographic follow-up. Four months after the surgery, occlusal radiograph showed the eruption pattern of the permanent central incisors in the proper direction (Figure 3). Eight

months after the surgery, the permanent central incisors erupted in the proper position (Figure 4).

DISCUSSION

Dental eruption is generally understood as a physiological condition consisting of the occlusal or axial movement of the tooth from a position and development inside the bone tissue until a complete and functional oral position when reaching the occlusal plane.¹⁶ Primary tooth impaction is quite rare during the development of primary dentition. This case reports impaction of primary mandibular central incisors. Patient was asymptomatic and clinical/radiographic examinations identified the impaction. In the present case, the mother reported no history of trauma or infection. In addition no evidence of any cysts, odontoma, supernumerary teeth or other abnormalities were noted in the radiograph. So there was no known etiology for this particular case, which is similar to other reports.^{17,19} However, trauma as a cause of impaction

can not be ruled out completely as parent may not be aware of the trauma, which occurs for young children prior to the eruption the primary dentition. A case was reported where an injury to the anterior maxilla and mandible of an infant prior to primary tooth eruption resulted in hypoplasia, displacement and impaction of the primary dentition and damage to a developing permanent tooth.²⁰ The etiology of the primary failure of eruption could also be explained on inheritance basis.³

A previous report describes five cases with primary failure of eruption of totally fourteen, second primary molars.³ None of these teeth ever erupted and were removed surgically at an age of 10 to 11 years. Additionally, in all five cases the eruption of the entire permanent dentition was severely retarded. In this case impacted primary central incisors were extracted after a period of observation for 6 months and the time of extraction was defined carefully by taking into consideration the development of the succedaneous incisors and the space relations in the permanent dentition. This eruption time of permanent incisors is almost 2.5 years earlier than normal eruption date. In contrast eruption of permanent successors could be delayed. A case of 3 years and 3 months old child with horizontal impaction of the mandibular left and right primary central incisors, showed that after extraction of the primary central incisors, approximately two thirds of the crowns of the left and right mandibular permanent central incisors erupted.²¹ In this case permanent teeth erupted rapidly within 8 months. This similar to another report in which surgical treatment allowed normal course of eruption during follow-up.¹⁷

Surgical treatment, in younger individuals is indicated if there is no prospect of satisfactory dental eruption, the tooth should be removed for prophylactic reasons, even if it is asymptomatic.²² A follow-up of the present case was planned to monitor the normal eruption of the mandibular permanent central incisors as impacted primary teeth may be associated with defects in development and eruption of the permanent successors.¹⁹ The impacted tooth is a tooth that is present inside the bone tissue, but that shows alterations during eruption or is prevented from performing its activity in the oral cavity. Unerupted tooth was defined as a tooth that is not present and does not establish communication with the oral cavity.²³

Variations in the course of primary incisor eruption should be suspected although it is not commonly observed. This report illustrates a case of impacted primary mandibular central incisors. Observation and periodic follow-up of the child as well as surgical treatment at the right time was the treatment of choice in the present case. This treatment allowed eruption of the permanent mandibular central incisors in the proper position eight months after the surgery.

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