

Ankylosis of deciduous molar associated with other dental anomalies: report of three cases

Anquilose de molar decíduo associado com outras anomalias dentárias: relato de três casos

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ABSTRACT

Dentoalveolar ankylosis is an anomaly of eruption which results in the abnormal fusion of the alveolar bone with cementum or dentine. It is commonly observed in deciduous molars, and has no defined etiology. It was reported three cases of primary molar ankylosis associated to one or more dental anomaly, like hypomineralization of tooth enamel, anodontia, supernumerary teeth, taurodontism and conical teeth. Although ankylosis is a common anomaly observed in pediatric patients, sometimes it is associated with other alterations, such as dental anomalies of number, form and enamel development. The coexistence of anomalies may enhance unwanted sequelae. Therefore, professionals should consider the possibility of the patient in having associated anomalies with tooth ankylosis, and thus offer adequate treatments and follow-up.

Keywords: Tooth ankylosis; Deciduous teeth; Dentofacial anomalies.

RESUMO

A anquilose dentoalveolar é uma anomalia de erupção que resulta em fusão anormal do osso alveolar com o cimento ou dentina. É comumente observado em molares decíduos, a não tem etiologia definida. Foram relatados três casos de anquilose de molares decíduos associados a uma ou mais anomalias dentárias, como hipomineralização do esmalte do dente, anodontia, dentes supranumerários, taurodontismo e dentes cônicos. Embora a anquilose seja uma anomalia comum observada em pacientes odontopediátricos, algumas vezes está associado com outras alterações, como as anomalias dentárias de número, forma ou desenvolvimento do esmalte. A coexistência de anomalias pode aumentar as sequelas indesejáveis. Além disso, os profissionais devem considerar a possibilidade do paciente em ter anomalias associadas com anquilose dentária, e assim oferecer tratamentos adequados e acompanhamento.

Palavras-chave: Anquilose dentária; Dentes decíduos; Anomalias dentofaciais.

INTRODUCTION

The dentoalveolar ankylosis is an anomaly of eruption which results in abnormal fusion of the alveolar bone with cementum or dentine¹. It is a disruption which may occur during eruption, root resorption, or even after establishing occlusal contacts^{2,3}. Clinical reports suggest an intimate relationship between tooth ankylosis of deciduous teeth and other dental anomalies such as hypoplasia^{4,5}, ectopic development and taurodontism of the permanent successor⁶, anodontia of the permanent successor^{7,8,9} and mesiodens¹⁰.

The purpose of this paper is report three cases of primary molar ankylosis associated to different dental anomalies, such as hypomineralization, anodontia, supernumerary teeth, taurodontism and conoid teeth.

CASE REPORT

Three patients, two females and one male, between 8 and 10 years, went to the Pedodontics Specialization Clinic, at São Leopoldo Mandic, for dental treatment. They had ankylosis of a deciduous molar associated to dental anomalies of number, form and/or enamel development. Previously to their clinical and radiographic exams, the parents/guardians signed a consent form.

CASE 1: Female patient, 10 years-old, Caucasian, went to the clinic presenting moderate infraocclusion of the mandibular right first deciduous molar and all deciduous molars of the maxillary arch, as well as severe infraocclusion of the mandibular left hemi-arch deciduous molars and mandibular right second deciduous molar (Figure 1 and 2). During anamnesis, no data was found for systemic conditions, and occurrence of anomalies in relatives was related. During the clinical and radiographic exams, it was

observed that the patient had no caries lesions, but had anomalies of number, form and eruption. The patient had conical maxillary permanent lateral incisors (Figure 3) and anodontia of the maxillary left second premolar (Figure 4). As a consequence of the ankylosis, the patient presented prolonged retention of deciduous molars, loss of vertical dimension, slight mesial inclination of the mandibular right first permanent molar, posterior open-bite and the germ of the maxillary right second pre-molar had a deviation of the eruption course.



Figures 1 and 2: Clinical Aspect – Moderate (54, 55, 64, 65, 84) and severe (74, 75, 85) infraocclusion.



Figure 3: Clinical Aspect –Conoid tooth.

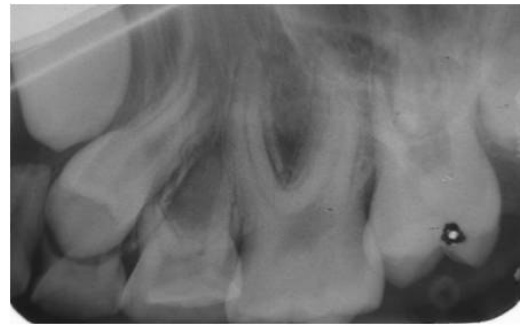


Figure 4: Radiographic Aspect- Anodontia of 25.

CASE 2: Male patient, eight years-old, Caucasian, presented infraocclusion on the maxillary left hemi-arch deciduous molars. The maxillary right first deciduous molar had crown lengthening with composite resin. During anamnesis, no data was found for systemic conditions, and occurrence of anomalies in relatives was related. During the clinical and radiographic exams, it was observed that the patient had active caries lesions, as well as anomalies of number, form, enamel development and anomaly of eruption. White spot lesions indicating hypomineralization were observed on the buccal surface of the mandibular left central and lateral permanent incisors (fig. 5). The patient also had an erupted supernumerary tooth, between the maxillary right central and lateral deciduous incisors, anodontia of the mandibular left second pre-molar and taurodontism of the mandibular left first permanent molar (fig. 6). As a consequence of the ankylosis, the patient presented loss of vertical dimension and the germ of the maxillary left second pre-molar had a deviation of the eruption course.



Figures .5 Hypomineralization on the buccal surface of teeth 31 and

CASE 3: Female patient, ten years-old, with tooth ankylosis on all deciduous molars on both maxillary and mandibular arch. During anamnesis, no data was found for systemic conditions, however, the patient's

mother stated the presence of anomaly of number in relatives: an uncle had anodontia and the patient's brother had a supernumerary tooth. The clinical and radiographic exams revealed no caries lesions, but the patient had hypomineralization on the maxillary left permanent central incisor. As a consequence of the ankylosis, the patient presented prolonged retention of deciduous molars, loss of vertical dimension and posterior open-bite.

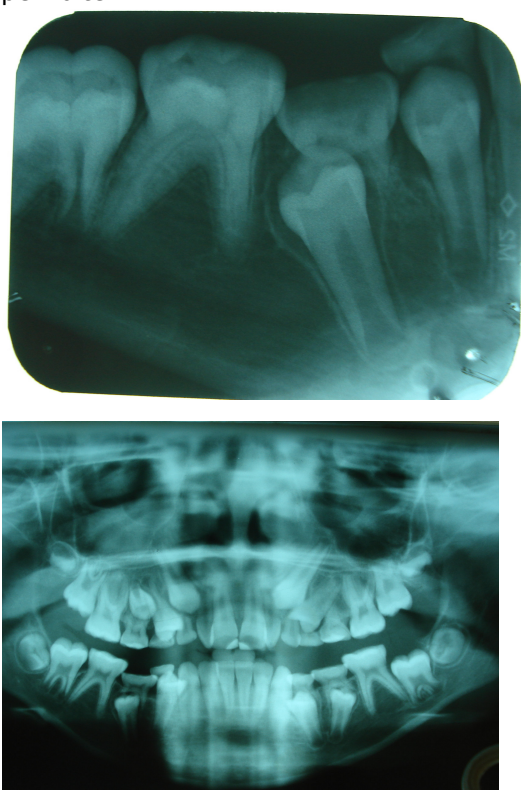


Figure 6: Radiographic Aspect – Anodontia of tooth 35 and taurodontism of tooth 36.

DISCUSSION

Deciduous molar ankylosis is characterized by the anatomic fusion of the alveolar bone with the cementum and/or root dentine. The main clinical sign is the tooth's position below the occlusal plane. Radiographically, depending on the region of the bone fusion, the absence of periodontal ligament continuity may be observed. The early diagnosis is fundamental in determining the best treatment for the patient, as well as for minimizing unwanted sequels, such as, loss of arch length, extrusion of the antagonist tooth, impaction or deviation of the eruption course of the permanent successor and deficient alveolar

bone growth in the region, thus resulting on a series of alterations in the patient's occlusion.

The etiology of tooth ankylosis is not completely clear, however, some theories are related, like trauma or masticatory pressure, congenital defects in the periodontal membrane, local periodontal ligament metabolism disorder and genetic theory^{3,11}. Atwan, Desrosiers¹⁰ consider that there probably is a combination of environmental and genetic motives.

Several studies and clinical reports show a coexistence of dentoalveolar ankylosis with other alterations, such as, anomaly of enamel development – hypoplasia; anomaly of form – taurodontism; and anomaly of number – anodontia and supernumerary^{7,9,12-14}. In this study, three cases of multiple dental ankylosis were reported associated with one or more dental anomaly. In the first case, deciduous molars with moderate or severe infraocclusion were observed. Such anomaly of eruption was seen in association with the anomaly of number and form, as noticed by the anodontia of a pre-molar and the presence of conoid permanent lateral incisors. The second case presented the anomaly of eruption, characterized by deciduous molars with infraocclusion, associated with anomalies of number, form and development, as noted on the hypomineralization of enamel on the permanent incisors, the supernumerary tooth, anodontia of a pre-molar and taurodontism. The third patient was diagnosed as having an anomaly of eruption, which was the presence of deciduous molars with ankylosis, associated with anomaly of development, as noticed on the hypomineralization of the permanent central incisor.

Lai *et al.*⁵ states that ankylosis of the deciduous molar is the most common anomaly associated with anodontia. It is present in more than 65% of patients with such anomaly of number. As ankylotic deciduous molars are normally associated with anodontia of the correspondent pre-molars, it is possible that the permanent successor's absence may significantly alter the ankylotic tooth's process of root resorption, thus promoting ankylosis. However, one needs to consider that hereditary trace may be related to the anomaly.

Rule *et al.*⁴ found a relationship between ankylosis and enamel defects. They

considered that ankylosis could be due to a compression of the periodontal ligament and that the factor linking the anomalies could be in the development of the different tissues. The authors suggest that the different anomalies may have a genetic origin.

Becktor *et al.*¹² studied the factors that influence the presence of dentoalveolar ankylosis together with root malformation. They suggested that viral or bacterial infection in some nerve branches may be associated with the anomaly. Therefore, previous infections in the craniofacial region should be researched during anamnesis. In the present study, no infections were related in any of the cases.

Still nowadays, the causes of dental anomalies have not yet been totally established, but genetic origin could be a probable issue. Several clinical reports associating akylotic deciduous teeth with some types of anomalies have confirmed the necessity of thorough clinical and radiographic exams. Such a procedure is fundamental for a correct diagnosis of all alterations that are possibly associated with the ankylosis. Consequently, the indicated treatment and control should be carried out, thereby avoiding that the sum of the deleterious effects, brought by each of the anomalies, brings severe damages for the patient's occlusion and esthetics.

CONCLUSION

The coexistence of anomalies may enhance unwanted sequels. Therefore, professionals should consider the possibility of the patient in having associated anomalies, and thus offer adequate treatments and follow-up.

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