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Case Report

Natal primary molar: clinical and histological aspects

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Abstract: The authors report a case of natal primary molar in a healthy 14-day-old child. The diagnosis of the case and the treatment plan are discussed, as well as histological analyses of the natal tooth. The tooth presented an immature appearance, with high mobility and insertion only in soft tissue, and therefore the clinical option adopted was dental extraction. Histological analyses revealed enamel hypoplasia and dentin showing a typical tubular pattern without alterations. The soft tissue had young and richly vascularized pulp with areas of chronic inflammatory infiltration. (J Oral Sci 52, 313-317, 2010)

Keywords: natal teeth; dentition, primary; tooth abnormalities.

Introduction

Eruption of the first tooth in the buccal cavity normally occurs around the sixth month of a child's life. Teeth that erupt prematurely have been designated as congenital teeth, fetal teeth, predeciduous teeth and *dentitia praecox* (1). Such teeth can be classified as natal teeth, observed in the buccal cavity at birth, and neonatal teeth, which erupt during the first 30 days of life (2).

Natal and neonatal teeth are rare in the buccal cavity (3,4). Their prevalence is considered to be low, varying from one case in every 2,000 to 3,000 births (1,2).

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The majority of natal teeth belong to the normal series and only a small percentage are supernumerary (5-7). The most common location for natal and neonatal teeth is the region of the lower central incisors, and posterior teeth are extremely rare (1,2,4-12).

The etiology of this anomaly remains unknown, although it has been related to a series of factors, such as superficial positioning of the tooth germ, osteoclastic activity within the tooth germ area (bone remodeling), hereditary factors, endocrine disorders, hypovitaminosis and fever states (2,7,8,13-15). Some authors have suggested that natal teeth could be associated with certain syndromes and newborns with orofacial clefts (16,17).

Clinically, natal and neonatal teeth can be normal in size and shape, or conical, with enamel hypoplasia and a yellow-brownish coloration (2,6,13,17-19). Radiographically, these teeth show low radiopacity, minimal or absent root formation, and an ample pulp chamber (6,18-20).

Histologically, the majority of natal and neonatal teeth present enamel hypoplasia with different degrees of severity, wide vascularized pulp and irregular dentin and cement formation (6,8,13,19,21). According to some authors, the enamel covering natal teeth is thin and can even be absent in some areas (2,8). The decision to maintain these teeth depends on a number of factors, such as degree of implantation and mobility, whether the tooth is part of the normal series or supernumerary, interference with breast-feeding, and the presence of traumatic injury (3,11,12).

The present report describes and discusses a rare clinical case of a natal primary molar, together with details of the clinical and histological aspects, and the clinical approach adopted.

Case Report

A black male child, aged 14 days, was brought to the School of Dentistry of the Lutheran University of Brazil (ULBRA- Canoas). While discussing the child's medical history, the mother reported that he had been born naturally. There was no evidence of systemic disease, congenital anomalies or syndromes. However, the mother reported that the child had had a tooth since birth.

Clinical features

An intraoral examination revealed the presence of a calcified structure on the upper alveolar ridge, in the region of the primary molars. This structure was similar in aspect to a primary maxillary right first molar, calcified only along the occlusal portion and joined to the ridge mucosa by soft tissue that was hyperplasic and presented reddened areas and bleeding (Fig. 1).

Surgical removal was planned since it was an immature, poorly formed tooth presenting mobility and insertion only in soft tissue. Removal of the tooth was performed when the patient was 21 days old. The surgery began with infiltrative anesthesia (0.60 ml of 2% lidocaine – Alphacaine with epinephrine, DFL) at the base of the tooth, followed by an incision where it was joined to the ridge mucosa. Curettage of the tissue at the base of the dental structure was then done. Finally, the wound was compressed with sterile gauze for 3 min to achieve hemostasis. The soft and hard tissues were forwarded for histological analyses (Fig. 2).

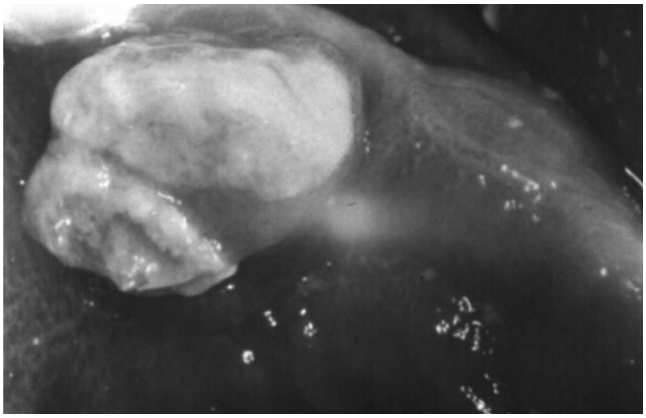

Fig. 1 Clinical appearance of the natal tooth in the primary maxillary right first molar region.

Fig. 2 After removal of the soft and hard tissues of the structure.

Soft tissue was prepared for light microscopy analysis using a conventional technique involving formalin fixation, dehydration in a graded ethanol series, clearing with xylene, paraffin embedding, sectioning, hematoxylin-eosin staining, and final mounting. For scanning electron microscopy (SEM) the specimen was prepared by mechanical cleaning of the specimen, soaking in 1% sodium hypochlorite for 20 min, ultrasound cleaning in distilled water for 10 min, dehydration in a graded ethanol series, soaking in hexamethyldisilazane (HMDS) for 10 min, drying for 2 h, mounting on a stub, and gold-palladium sputter coating.

One week later, the patient returned for postoperative evaluation, which demonstrated normal cicatrization. Clinical and radiographic follow-up of the patient confirmed that the tooth belonged to the normal series of primary dentition.

Histological features

Histological analysis of the soft tissue by light microscopy revealed fragments of buccal mucosa covered by non-keratinized stratified epithelium. The adjacent lamina propria consisted of dense connective tissue, including congested blood vessels, hemorrhagic foci, and intense infiltration of inflammatory cells (Fig. 3).

In some regions, the connective tissue showed an absence of epithelial covering, and the surface exhibited necrosis, with intense infiltration of inflammatory cells and blood vessels varying in morphology and caliber, with occasional congestion.

The deepest region consisted of young connective tissue containing blood vessels of varied caliber and discrete chronic inflammation. This was shown to consist of cells with varied morphology, fine collagenous fibers and a large quantity of an amorphous substance, consistent with young pulp tissue (Fig. 4).

The hard tissue portion of the tooth was separated into two parts along the mesiodistal line. One part was used for analysis of the internal surface of the fragment (portion closest to the soft tissue) and the other for analysis of the external surface.

SEM analysis revealed a tubular pattern, consistent with dentin, on the internal surface of the fragment (Fig. 5). Along the edges of the fragment, a tissue similar to dental enamel was observed. Surface areas presenting a honeycomb-like appearance were also found in the prismatic region of the enamel (Fig. 6).

Analyses of the external surface of the fragment showed regions presenting a dentin-like tubular pattern, as well as other regions presenting the honeycomb-like appearance of prism terminations. Along the edges of the fragment, irregular areas and depressions were observed, as well as other areas revealing a more regular and homogeneous surface (Fig. 7).

Discussion

This report has described a case of a natal tooth.

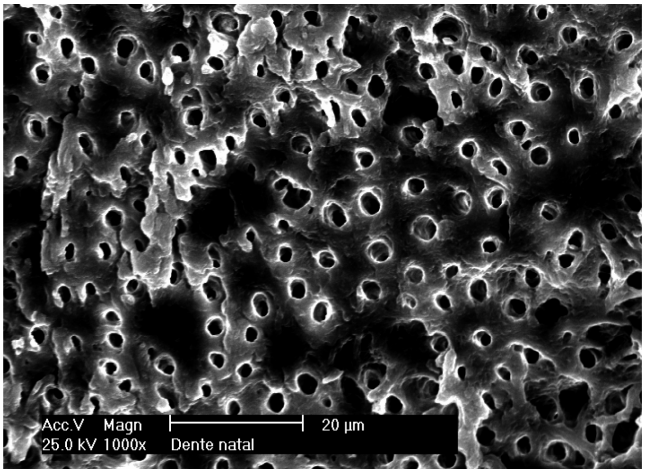

Fig. 5 Fragment of hard tissue with a typical dentin-like tubule pattern.

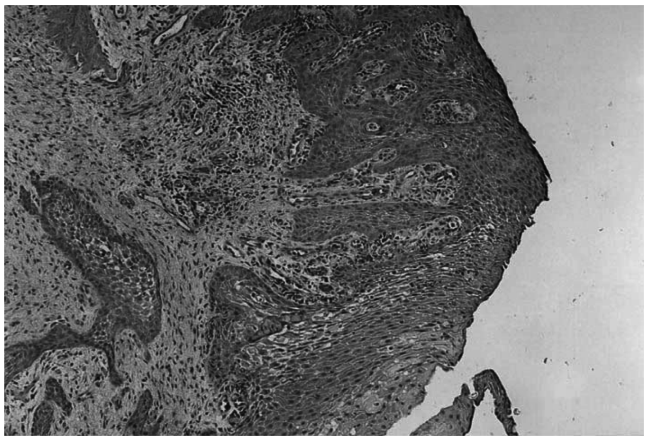

Fig. 3 Fragment of the buccal mucosa showing non-keratinized stratified epithelium and dense connective tissue with an inflammatory infiltrate.

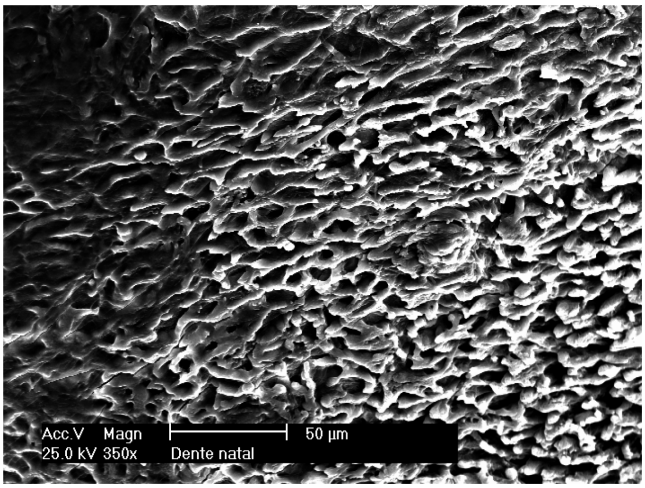

Fig. 6 Dental enamel with a honeycomb-like appearance.

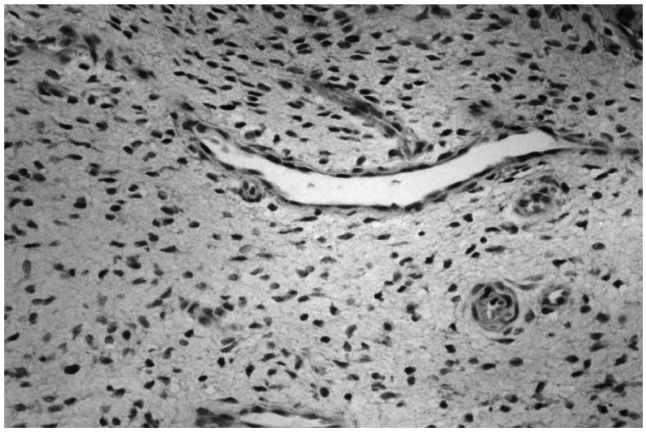

Fig. 4 Young connective tissue with blood vessels of varying size and morphology and discrete chronic inflammation.

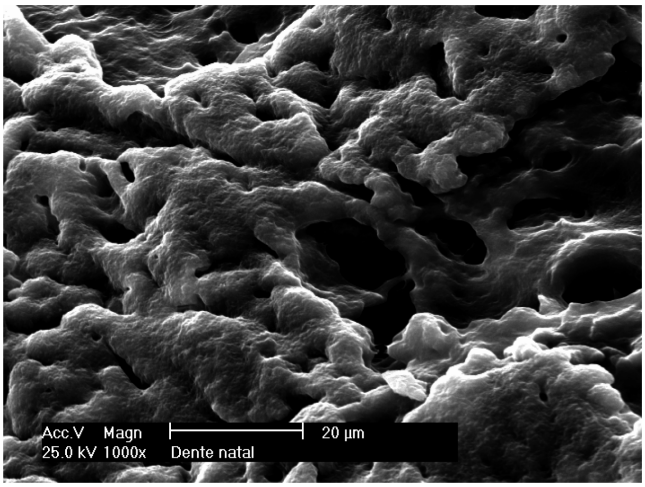

Fig. 7 Region of enamel hypoplasia showing an irregular surface and depressions.

Observations of the hard dental tissue and connective tissue showing characteristics of pulp tissue confirmed that the clinically observed structure was a natal primary molar.

Difficulty in obtaining a radiographic appraisal of the region, due to the child's age, prevented immediate confirmation of whether the tooth in question belonged to the normal series or was supernumerary. However, with subsequent patient follow-up and eruption of the remaining teeth, it was possible to confirm that the tooth had been a first primary molar of the normal series. This is in agreement with several authors who have affirmed that the majority of such teeth belong to the normal series of primary dentition (5-7). It is noteworthy that, according to the literature, natal teeth in the primary molar region are considered rare (1,2,6-12).

SEM observation revealed obvious enamel in some regions, while in others the dentin tissue was exposed to the buccal environment. The absence of enamel can be explained by both non-formation of this tissue or its loss. Non-formation of the prismatic layer, revealing the honeycomb-like appearance of prism terminations on the enamel surface, has also been described (19,21).

Natal and neonatal tooth enamel is immature due to early eruption, while its absence is related to the termination of amelogenesis prior to eruption (20). The presence of irregular areas and depressions on the surface of the natal tooth analyzed indicate areas of enamel hypoplasia, which has been well described in the literature (6,8,13,19,21).

Irregularities of dentin tissue formation in natal and neonatal teeth have been described in some studies, while others have observed no such alterations (5,6,8,13,21). The dentin tissue of the natal tooth analyzed here presented a typical tubular pattern, with no evidence of abnormalities.

Light microscopy revealed inflammatory change in the buccal mucosa attached to the dental element, including regions of exposed connective tissue with necrosis. This corroborated the clinical evidence of areas of reddened soft tissue, bleeding and hyperplasia. The presence of areas of inflammation in the pulp connective tissue could be explained by bacterial propagation, similar to that occurring during tooth exfoliation (13).

In a study of natal teeth, Hals (1957) observed normal pulp tissue, except for the presence of inflammatory areas in some regions; moreover, Weil's basal layer and the cell-rich zone were absent (13,22). This absence of the pulp zones is considered normal, since these would only be present after completion of dentin formation (13,22)

Intense vascularization was observed in the area of the present natal tooth. This could have contributed to the early eruption of the tooth, due to higher pulp blood pressure (13). The absence of the root and any periodontal structure was probably related to the formation stage of the natal primary molar at the time of birth.

According to the literature, extraction of a natal tooth is indicated in some circumstances. These include whether the tooth is supernumerary, shows high mobility, or a risk of dislocation and aspiration, or would provoke traumatic injury to the ventral surface of the baby's tongue (Riga-Fede Disease) or mother's breast, thus interfering with breast-feeding (5,6,11,12,14). The clinical approach adopted in the present case was based on tooth extraction, in view of its mobility and mainly immature appearance. Curettage of the tissue at the base of the natal molar was also done because of the possibility of residual tooth development (23).

For surgical removal of the dental element, local anesthesia in an outpatient setting was adopted, despite the patient's young age. Care should always be taken when carrying out such procedures on newborns, in view of potential blood loss, and the risk of difficulty in controlling hemorrhage due to hypoprothrombinemia in babies up to 10 days old (24).

Thus, when natal or neonatal teeth are encountered, confirmation of the diagnosis and accomplishment of the correct therapy based on the individual characteristics of each case are important. When dealing with natal or neonatal teeth belonging to the normal series that reveal no other clinical problems, every effort should be made to retain the teeth (10,24). Parents should be informed of the importance of these teeth in relation to the growth and eruption of adjacent teeth, as well as hygiene requirements and topical application of fluoride (3,17).

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