

## Concurrent presentation of dental lamina cysts of the new born and natal tooth in a child: a case report and literature review.

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### ABSTRACT

Dental lamina cysts and natal/neonatal teeth are rare findings in a neonate with the dental lamina cysts presenting as white or pink small nodules, often multiple, approximately 1 to 3mm in diameter. They are usually located on the alveolar mucosa of both maxilla and mandible and also on the mid-palatine raphe; the whitish colored lamina cysts found on the alveolar mucosa can be confused clinically with neonatal teeth. Neonatal teeth are teeth found in infants within the first 30 days of life, and they present a social stigma to the parent. They have been reported to be a component of the full complement of teeth in 90-95% of cases. Apart from the social stigmata, they can also induce trauma to surrounding soft tissues and / or to the mother's breast (Riga-Fede phenomenon). While the dental lamina cysts usually resolve spontaneously within few weeks to months, there are indications that might preclude extraction of a natal/neonatal tooth.

**Keywords:** Dental lamina cyst, Epstein's pearls, Mucosal cyst, natal/neonatal tooth.

**INTRODUCTION:** The dental lamina cyst (DLC) of the newborn, also referred to as inclusion cysts of the newborn, is a derivative of the remnant of dental lamina (rests of Serres). It is predominantly found in neonates and rarely found after 3 months post-natal life<sup>1</sup>. Froome in 1967<sup>2</sup> classified DLC based on location within the oral cavity into three as alveolar cyst; Bohn's nodule and Epstein's pearls. However, this classification have no clinical pathological significance because they are often asymptomatic, transient in nature and typically regarded as normal<sup>3-5</sup>. Usually it is self-limiting and requires no treatment<sup>4,6</sup>. Dental lamina cysts clinically present as multiple round to oval white, yellow or pink small nodules in the maxillary and/or mandibular alveolar ridge of newborns and are approximately 1 to 3mm in diameter<sup>2,7,8</sup>. Variation in the prevalence of individual type of DLC has been reported, nevertheless gingival cyst of infants accounted for 13.8%, Epstein pearls 35.2% and Bohn's nodule 47.4% with equal sexual

predilection<sup>9</sup>. Regardless of this high prevalence, the cysts are rarely seen or presented to the dentist or pediatrician. This is due to the fact that they tend to rupture spontaneously within few weeks after birth<sup>4,7</sup>. The transient nature of this lesion has been attributed to the fusion and subsequent adherence of the cyst wall with oral epithelium and discharge of the cystic content<sup>7</sup>. Natal tooth is the term used for a premature tooth presenting at the time of birth while neonatal tooth is the one that erupts within the first twenty-eight days to one month post nately<sup>10</sup>. On the other hand, teeth erupting beyond the natal period of thirty days are usually referred to as early infancy teeth<sup>11</sup>. Previous studies<sup>12,13</sup> report varying prevalence, ranging from 1:700 to 1:30,000 live births and they have also been reported in association with syndromes such as cleft palate and Pierre Robin syndrome, Hallerman-Streiff, Ellis-van Creveld, craniofacial dysostosis, multiple steacystoma, cleft /palate and Sotos syndrome.

Although the exact etiology is unknown, several factors have been associated and these include; infection, febrile states, trauma, malnutrition, superficial position of the tooth germ, hormonal stimulation, hereditary transmission of a dominant autosomal gene, hypovitaminosis and maternal exposure to environmental toxins<sup>14</sup>. Spoug and Feasby (1966)<sup>15</sup> classified natal and neonatal teeth

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according to their degree of maturity into mature natal or neonatal tooth and immature natal or neonatal tooth. Immature tooth also implies a poor prognosis. Hebling et al<sup>12</sup> also classified natal teeth into 4 clinical categories namely; shell-shaped crown poorly fixed to the alveolus by gingival tissue and absence of a root; solid crown that is poorly fixed to the alveolus by gingival tissue with little or no root; eruption of the incisal margin of the crown through the gingival tissues; and edema of gingival tissue with an unerupted but palpable tooth. Oyedeji et al,<sup>15</sup> reported negative assumptions and beliefs among Nigerian population regarding the presence of natal/ neonatal teeth. The condition was viewed as an indication of evil luck and affected children are sacrificed to appease the gods. Families of Chinese babies born with natal/neonatal teeth also consider it as a bad omen<sup>15</sup> while in Europe it is believed that the child will be a warrior or a soldier. It is however thought to herald good tiding in some Malaysian communities<sup>12</sup>. Dental lamina cysts and natal/neonatal teeth are oral conditions that may co-exist and should be differentiated by radiographic examination<sup>15</sup>. Documented literature has reported the presence of natal/neonatal teeth co-existing with other oral features such as reactive fibrous hyperplasia<sup>16</sup>, bilateral mandibular hamartomas, pyogenic granuloma, peripheral ossifying fibroma, eruption cyst<sup>16</sup>, gingival fibrous hamartoma and bifid tongue<sup>12</sup>. We therefore report an unusual case of

multiple dental lamina cysts and a natal tooth in a 17-day old infant who presented at the oral diagnosis unit of Aminu Kano Teaching Hospital, Kano.

#### CASE REPORT

A 17-day old baby girl presented with multiple, localized gingival swellings in the left maxillary arch and the mandibular arch bilaterally. She also presented with a tooth in the right mandibular arch. The mother claimed that the gum swellings and the tooth were noted at birth. The mother gave no history of trauma to the tooth and confirmed no increment in the size of the swelling since birth. She claimed the tooth had not adversely affected the child's oral functions, nor caused any trauma to surrounding structures or traumatize her breast during breast feeding the baby. She is the second child to a nonconsanguineous married couple. The baby was delivered normally at full term with the assistance of birth attendants. The mother denied any illness during the pregnancy and claimed that the baby's delivery was uneventful. No familial history of similar gum swelling. Extra-oral findings were jejune and intra oral examination of the child revealed a number of small whitish papules found bilaterally on the lower jaw and also unilaterally on the upper left quadrant. The lesions were soft and spongy in consistency and ranges between 6mm and 10mm in size.



Fig. 1a and b. Alveolar cyst in the upper left quadrant and lower gum (bilateral) pad (arrows) and natal tooth in the lower right gum pad (arrowhead)

Intraoral examination revealed the crown of a tooth in the right mandibular anterior region, whitish opaque in color and very firm. The crown size was normal and the gingiva was clinically normal. On the basis of clinical examination and characteristic appearance of the lesion, the diagnosis of multiple dental lamina cysts of the newborn and a mandibular natal tooth was made. The natal tooth appeared solid and firm, well attached to the alveolus, it was left in place and the baby placed under observation. Patient's mother was counseled about the self-limiting nature of the cyst, reassured and given the appropriate oral hygiene instructions.

## DISCUSSION

Dental lamina usually degenerates into clusters of epithelial cells during tooth development, but may persist as rests of Serres and may consequently proliferate to form minute keratinized cysts known as the dental lamina cysts of the newborn<sup>6</sup>. Majority of these cysts degenerate into the oral cavity within two weeks to five months of postnatal life<sup>2, 6</sup>. The dental lamina cyst (also known as gingival cyst of newborn), is considered a true cyst as it is lined by thin epithelium with a lumen usually filled with keratin and occasional presence of inflammatory cells<sup>9</sup>.

A previous study<sup>12</sup> observed a slight female predilection, while another recorded no gender difference<sup>2</sup>. Marini et al<sup>2</sup> reported an increased incidence among the Caucasoid population. The reported case is an African female child. Donley and Nelson<sup>1</sup> reported a correlation between the presence of oral cysts and gestational age and birth weight of the child, they reported reduced incidence of oral cysts in preterm births and in children with birth weight of less than 2.5kg. The patient in our case report was a full-term baby. Records of prevalence of gingival cysts in Nigeria and Africa are lacking and gingival cysts were either not included in the documented studies of odontogenic cysts<sup>17, 18</sup> or there were no observed incidence<sup>19</sup>. This might not be unconnected with its transient asymptomatic nature. The mother of the child in our present study presented majorly because of the concurrent association with the natal tooth Donley and Nelson<sup>1</sup> reported a maxillary arch predilection with observation that when seen in the mandible, they also occurred in the maxilla. This is similarly observed in our present case study. In addition, they also reported labial aspect of the anterior region and deciduous second molar as most

affected regions. In contrast, the cysts in our present study were found around the region of the deciduous first molars. Revathy and Bharath<sup>3</sup> also described the cysts as occurring in clusters of between lateral incisor and first molar with sizes of 1-3mm with whitish, yellowish-white or a pinkish hue<sup>3, 7</sup>. However, in the present case, they presented as isolated cysts occurring in three different quadrants with whitish coloration and appear transparent. DLC of the newborn are mostly asymptomatic with no discomfort to the infant<sup>3, 5</sup> as similarly observed in our case. Marini et al,<sup>5</sup> observation was at variance with our case as they reported tenderness and spontaneous bleeding.

Management depends on whether the lesions are present or not but in most cases treatment is not recommended because of the tendency of cysts to rupture spontaneously<sup>3</sup>. Mechanisms for resolution of DLC include fusion of the cyst wall with the oral epithelium and discharge of its content into the oral cavity<sup>4</sup> usually within the first few months after birth. A range of 6 weeks to 5 months has been reported<sup>12</sup> for involution of dental lamina cysts<sup>4</sup> in comparison to our case that spontaneously ruptured a month after presentation. The reported case was followed up over a period of 3 months with no recurrence of the gingival cysts and no observed symptoms associated with the natal tooth. Dental lamina cysts have been confused with natal/neonatal tooth, which they must be differentiated from by radiographic investigation. They have also found to be associated with the natal/neonatal teeth on occasions<sup>2, 15</sup>, this is consistent with the reported case. Unlike the dental lamina cyst, the mandibular anterior region is the commonest presentation site of the natal / neonatal teeth, a higher female predilection has also been reported<sup>12</sup>; however reports from some documented studies<sup>15, 20</sup> in Nigeria observed a male predilection.

About 90-99% of natal / neonatal teeth are part of the normal complement of the primary teeth<sup>12</sup> hence maintenance of the teeth is paramount except where the teeth are extremely mobile, inflicting injury to the mothers' nipple during breast feeding (Riga-Fede phenomenon) and when they cause injury to adjacent structures<sup>15</sup>. Other indications for extraction include interference with feeding, poor development and association with soft tissue growth<sup>12</sup>. Alternative treatment modalities include composite or photopolymerizable resin covering of the incisal portion of the tooth to guard against injuries to

adjacent structures and also to hasten healing of ulcers secondary to Riga-fede disease<sup>15</sup>. The natal tooth in the present study was firm and appear fairly developed, no associated soft tissue growth and no injury to adjacent structures nor tongue, hence it was left in place and observed concurrently. Mother was however counseled on appropriate oral hygiene measures to assist in prevention of dental caries by controlling bacterial plaque including periodic fluoride application. This becomes expedient as mineralization is not complete in prematurely erupted natal/ neonatal<sup>14</sup>

## CONCLUSION

Dental lamina cysts of the newborn and natal/ neonatal teeth in the oral cavity are both rare lesions and can also clinically be confused with each other presenting a great challenge for paediatricians, paediatric surgeons, and paediatric dentists. The present case epitomized the concurrent association of the two rare lesions; the dental lamina cyst resolved spontaneously while the natal tooth was placed under observation and monitored due to its firm and asymptomatic presentation.

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