Oral Characteristics of Newborns

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ABSTRACT

Newborn infants present some oral characteristics that are inherent to their stage of development and adequate to their physiological needs. There may also be physiological variations, however, which frequently raise doubts among parents. Many dental professionals are not aware of these aspects of the oral cavity of infants. The purpose of this paper was to present the normal aspects and common variations observed in the oral cavity of newborns to allow proper dental care and counseling to parents. (J Dent Child 2008;75:4-6) Received October 15, 2006 | Last Revision May 18, 2007 | Revision Accepted May 23, 2007.

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During the first months of life, newborns present some characteristics that are inherent to their stage of development and suitable to their physiological needs, but which frequently raise doubts among parents.

Lately, parents are seeking dental care for their children at increasingly earlier periods, even before 1 year of age, which allows dental professionals to provide oral health information at a proper period. Many dental professionals however, are unaware of common characteristics of the oral cavity of young infants. This lack of information precludes adequate clinical examination and information.

The aim of this paper is to inform dental professionals about the normal aspects and common variations observed in the newborn's oral cavity, so that they may provide proper dental care and counseling.

LITERATURE REVIEW

The sagittal maxillomandibular relationship presents changes during the development of occlusion. Forward maxillary positioning in relation to the mandible is the most remarkable aspect at birth and yields a pseudo-appearance of micrognathia (Figure 1). Few infants present an edge-to-edge maxillo-mandibular relationship at birth.[1] Backward mandibular displacement is assigned to ventral positioning of the fetus in the amniotic cavity; the correct maxillomandibular relationship developing after birth is probably achieved by the physiological sucking exercises.[2]

Concerning the vertical maxillomandibular relationship, there is anterior open bite, regarded as physiological before

Figure 1. A newborn's pseudo appearance of micrognathia.

Figure 2. A newborn anterior open bite.

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onset of tooth eruption (Figure 2). This space is filled by the tongue at rest and will be filled by the teeth later.[1]

The temporomandibular joint (**TMJ**) of the newborn is also peculiar; the condyle and disc are flattened and the articular eminence is only a mild elevation (Figure 3). For that reason, there is greater freedom of mandibular movement due to the absence of interferences. These movements promote development of the perioral muscles, which leads to maturation of the TMJ.[3]

The lip contour is characteristically triangular, with base on the lower lip and vertex on the upper lip (Figure 4).[4] After birth, the frequent feedings lead to formation of the sucking callus (Figure 5). This pad is composed of an increased volume at the midline of the upper lip, enhancing mouth-to-breast engagement by the infant during breast-feeding, and its volume is further increased when in contact with the breast or after stimulation. It is usually larger in younger breast-feeding children.[5]

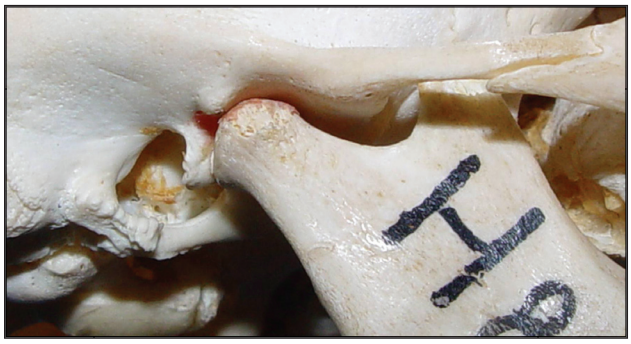

Figure 3. The temporomandibular joint, as observed in a newborn's dry skull.

Figure 4. A triangular mouth shape.

Figure 5. The sucking callus.

Figure 6. A newborn's upper lip frenum.

Figure 7. The maxillary gum pad.

The attachment of the lip frenum is variable, ranging from a few millimeters above the alveolar ridge margin (Figure 6) to an extent through the alveolar ridge to the incisive papilla. This constitutes the so-called "persisting tectolabial frenum," which enhances breast-feeding by providing greater support to the upper lip.[6] This frenum tends to diminish in size with normal development. According to Dias-Pizan et al,[7] the persisting tectolabial frenum is observed in 25% of children, and the level of gingival insertion tends to move apically with age.

The palatal rugae are very evident in the newborn. The alveolar ridges of infants exhibit the gum pads (Figure 7), which are formed by thickening of the gingival mucosa and present segmentations corresponding to the regions of primary tooth bud development .[4,5] A well-developed fibrous cord is observed over the maxillary and mandibular gum pads at the incisors and canines region; its gradual involution indicates primary anterior teeth eruption.[5]

Besides these normal aspects, infants may also present some frequent changes according to their stage of develop-

Figure 8. Neonatal teeth.

ment, such as natal and neonatal teeth. Natal teeth are present at birth, whereas neonatal teeth erupt up to 30 days after birth (Figure 8). Their reported prevalence is nearly 1:1,000 births[8]; most of these teeth are mandibular primary incisors[5] and are more frequent among females.[9] Due to hypermobility and limited root development, they are usually extracted due to the risk of aspiration.[9]

Some infants also present with gingival cysts. These are remnants of embryonic epithelial structures and may be classified as Epstein pearls, Bohn nodules, or dental lamina cysts, according to Fromm.[10] The Epstein pearls are located along the midpalatal raphe and consist of epithelial remnants of the developing palate. The Bohn nodules are observed on the buccal and palatal aspects above the gum pads, especially in the maxilla, and may be isolated or multiple (Figure 9). Their origin is related to entrapment of mucous gland tissue; they are frequently confused with teeth. The dental lamina cysts are located at the alveolar ridge crest and are more frequent at the posterior region; they are composed of dental lamina remnants. Many authors, however, believe these 3 types are actually a single entity, which differs as to their location and tissue of origin. Moreover, Fromm's classification disagrees with the current knowledge on embryology.[11]

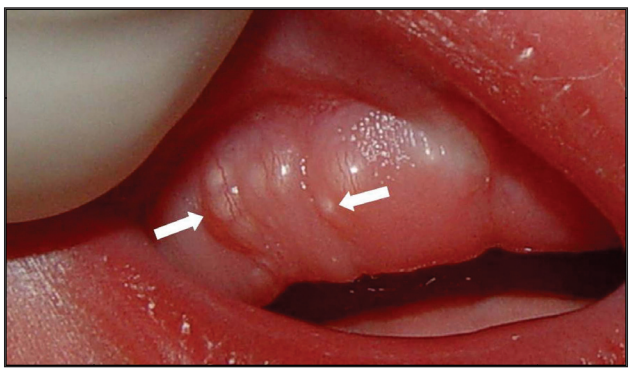

Figure 9. Multiple Bohn's nodules in a newborn.

CONCLUSIONS

Newborns present some normal oral characteristics, as well as physiological variations, according to their development stage. Knowledge of these aspects by dental professionals is fundamental to allow proper counseling to parents.

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