

Diagnosis and management of oral lesions and conditions in the newborn

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Keywords: infant; newborn; oral mucosa; oral lesions

Abstract

Infants frequently present with oral lesions and conditions that may lead to anxiety among parents. The most common lesions and conditions include natal and neonatal teeth, the different oral mucosal cysts of the newborn, ankyloglossia and congenital epulis of the gingiva. The diagnostic features and management principles of these lesions are discussed in order for healthcare workers to provide proper care and counselling to patients and parents.

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SA Fam Pract 2010;52(6):489-491

Introduction

Healthcare workers are faced with a variety of lesions affecting the oral cavities of infants. These may vary from physiological variations linked to development, to tumours. Knowledge of these is important for accurate diagnosis to allow proper counselling and advice on treatment planning. The aim of this paper is to inform healthcare workers about the diagnosis and management of common lesions and conditions affecting the oral cavities of newborns.

Natal and neonatal teeth

The first deciduous tooth erupts after approximately six months. Natal teeth are teeth present at birth, while neonatal teeth erupt within the first month after birth. The majority of natal teeth form part of the primary dentition, while about 10% represent supernumerary teeth. Supernumerary teeth are extra teeth that develop in addition to the normal complement of 20 primary teeth. Almost 90% occur in the anterior mandibular incisor area. Natal teeth are usually well-formed, but may be discoloured, with an irregular surface. They have increased mobility due to absent or short roots still in the process of development. Natal teeth are uncommon with an incidence of approximately 1:2 000 to 1:3 000 live births. Although this condition usually occurs sporadically, it has been described in certain syndromes, developmental abnormalities and gingival tumours.¹⁻²

A dental radiograph is always indicated to determine if the natal tooth is a supernumerary tooth or part of the primary dentition. An extraction is indicated if it is supernumerary or interferes with breastfeeding. Extremely mobile teeth

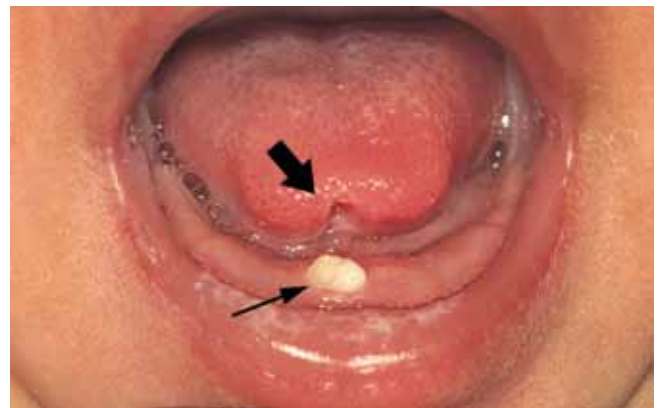


Figure 1: Anterior mandibular natal tooth (thin arrow) with corresponding ulcerative lesion (Riga-Fede disease) on the tongue (bold arrow)

should also be extracted to prevent possible aspiration. No treatment is necessary if the tooth is part of the primary dentition and does not interfere with breastfeeding. The presence of natal teeth may lead to traumatic ulceration of the ventral surface of the tongue, known as Riga-Fede disease (Figure 1). This is not an indication for extraction and should be treated by smoothing the rough incisal edge of the natal tooth.

Cysts of the newborn

Oral mucosal cysts in the newborn have been marked by confusing terminology that has been used interchangeably in the literature. It should be separated into two categories based on the different histogenesis of the lesions.

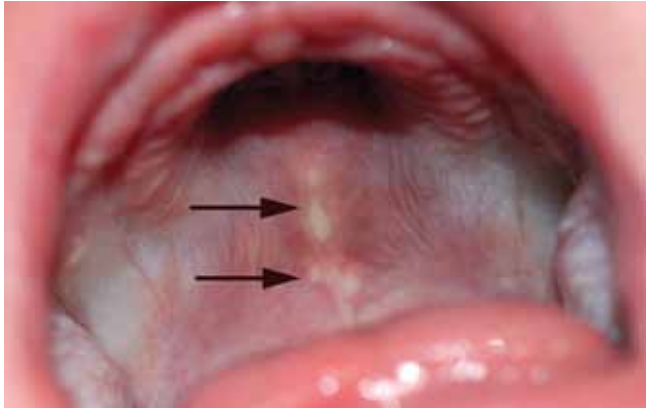


Figure 2: Midpalatal raphé cysts (arrows) presenting as white nodules in the midline of the palate.



Figure 4: Gingival cysts of infants on the mandibular alveolar ridge (arrow) may be misdiagnosed as natal teeth



Figure 3: Gingival cysts of infants (Bohn's nodules) presenting as keratin-filled cysts on the maxillary alveolar ridge (arrows)

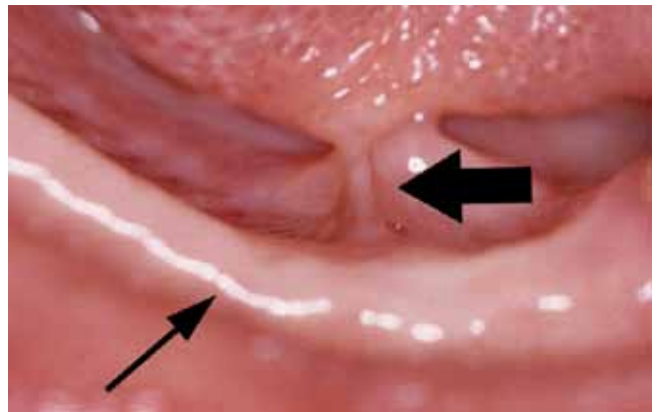


Figure 5: Ankyloglossia showing a short lingual frenum (bold arrow) attached to the lingual aspect of the mandibular alveolar ridge (thin arrow)

Midpalatal raphé cysts of the newborn

The palatal folds are bilateral embryonic processes that fuse in the midline of the oral cavity during the eighth prenatal week to eventually form the hard palate. These processes also fuse with the nasal septum above to result in a complete separation of the oral and nasal cavities. The connecting epithelial lining between the merging folds are enzymatically removed to allow connective tissue fusion between the folds. The midpalatal raphé cysts of the newborn, also referred to as Epstein's pearls, arise from epithelial remnants along the line of fusion of these folds. The condition is very common and has been reported in 65% to 85% of neonates. It presents as small (1–3 mm) yellow-white papules along the midpalatal raphé, especially at the junction of the hard and soft palate (Figure 2).³ Histologically, these cysts are filled with keratin. No treatment is indicated, as they atrophy and disappear in a short period of time once their contents are expelled.

Gingival cysts of the newborn

Gingival cysts arise from the dental lamina, an ectodermal band that gives rise to the primary and permanent dentition. Remnants of the dental lamina, known as the cell rests of

Serres, have the potential to proliferate and form small cysts. These rests are also the origin of a variety of odontogenic tumours and cysts found later in life. Cysts occurring on the gingivae of newborns are referred to as Bohn's nodules as well as gingival cysts. Bohn's nodules are reported to be present on the buccal and lingual aspects of the alveolar ridges (Figure 3), while gingival cysts are found on the crest of the alveolar ridges.³ These terms have been used interchangeably with resulting confusion. These cysts should be referred to as gingival cysts of the newborn.

Gingival cysts of the newborn are very common and a frequency of 79% has been reported in Taiwanese neonates examined within three days of birth.⁴ They present as small whitish lesions that do not increase in size. When present on the anterior mandibular ridge, they may be misdiagnosed as natal teeth (Figure 4). No treatment is necessary, as the cysts rupture spontaneously due to secondary trauma or friction.

Ankyloglossia

Ankyloglossia or tongue-tie refers to clinical situations where the tongue is fused to the floor of the mouth or where the lingual frenum is short, with resulting impaired tongue

mobility (Figure 5).⁵ Although ankyloglossia is present in all age groups, it is found more commonly in neonates. The reported prevalence in studies examining neonates varies from 1.7% to 10.7% compared to 0.1% to 2.1% in adults.⁵ This suggests that some milder forms of ankyloglossia resolve with growth.

Ankyloglossia is associated with breastfeeding difficulties and nipple pain. Frenotomy (simple cutting of the frenum) is the treatment of choice in newborns with ankyloglossia. The frenum is cut with small scissors at the thinnest area. This can be done with topical anaesthesia, resulting in minimal discomfort and little tendency to bleed.⁵ A study on 215 newborns in whom frenotomy was performed without anaesthesia reported no bleeding in 38% and only a few drops of blood in 52%. Eighty percent were feeding better within 24 hours of the procedure.⁶

Congenital epulis

The congenital epulis is an uncommon tumour of uncertain histogenesis that characteristically presents on the alveolar ridge of the newborn. The clinical course – the lesion does not increase in size after birth and may regress – suggests a reactive rather than neoplastic aetiology.⁷ When present, it is most often found on the anterior maxillary alveolar ridges as a round sessile tumour, usually smaller than 2 cm in diameter, with a smooth lobulated surface (Figure 6). Larger tumours have been reported. A female predilection has been demonstrated. It is suggestive of hormonal influences, but oestrogen or progesterone receptors have not been detected.⁸ Multiple lesions may occur in about 10% of cases, supporting the need for thorough examination of the oral cavity.

Histological findings of congenital epuli show the presence of large granular cells with small nuclei. S100 protein antigen staining is negative in these lesions, in contrast to a granular cell tumour. Other markers of neurogenic origin are also

negative, supporting a non-specific mesenchymal origin. Congenital epuli are treated by surgical excision, especially when obstructive respiratory or feeding problems exist or when histological confirmation of the diagnosis is required. A wait-and-see approach can be followed in smaller cases as spontaneous regression has been reported.⁷ No recurrences, even with incomplete removal, or malignant transformation have been reported.

Conclusion

The prevalence of these lesions and conditions in the newborn in South Africa is not known, as only isolated case reports have been published. There is, however, no reason to suspect that it will differ significantly from those reported in other geographical areas. It is important for the healthcare worker to correctly diagnose these oral lesions and conditions of the newborn to ensure appropriate management and counselling to parents.

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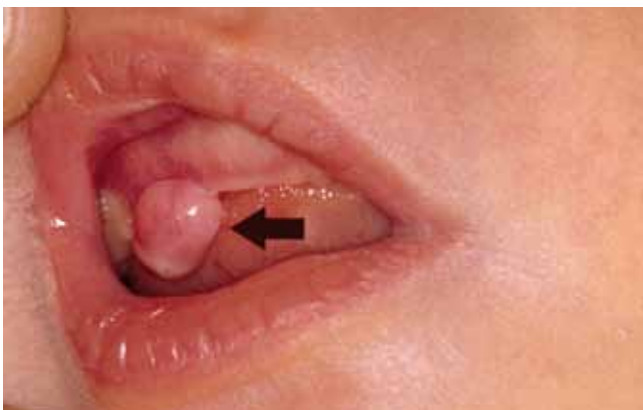


Figure 6: Pendunculated congenital epulis (arrow) on the anterior maxillary alveolar ridge