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An Unusual White Lesion in a 10-month-old Child

Abstract: Oral lesions commonly diagnosed in newborns and infants include Epstein's pearls, Bohn's nodules, dental lamina cysts and congenital epulis. Nevertheless, intriguing cases which have rarely been reported in the literature are encountered by clinicians. This paper reports a case of an unusual white lesion in a 10-month-old child which resolved spontaneously. However, histological examination proved it to be a foreign body.

Clinical Relevance: Infants tend to explore things with their mouths; hence they put anything they can hold into it to determine the size and texture. This case serves to illustrate that the unexpected can occur and that, in children, the differential diagnosis should include a foreign body.

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A wide range of developmental anomalies and morphological variants can occur in the oral cavities of the newborn and infants. The most commonly diagnosed developmental anomalies include Epstein's pearls, Bohn's nodules, dental lamina cysts, congenital epulis, natal teeth and leukoedema.^{1,2} Collectively, these conditions are common and of only minor pathological concern,³ as most are innocuous and resolve in time in the absence of active treatment.

Foreign body aspirations and ingestions are common occurrences in the paediatric population. Foreign bodies embedded in the oral cavity are rarely reported in the dental literature, the reason being that such bodies are commonly lodged superficially and are easily removed by the patient or parents (in the case of children) or by the medical or dental practitioners.⁴ The more commonly

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Figure 1. The white lesion on the buccal aspect of the maxillary alveolus in the right central incisor region with a smooth white convex surface.

reported foreign bodies in the oral cavity include fish bones, metal objects, broken tooth fragments, projectiles of an air rifle and pen caps.⁴⁻⁶ Conversely, the medical literature holds a wealth of reports on foreign bodies in the various orifices such as ears, nose, throat, oesophagus and the respiratory tract, with food items like nuts and seeds, plastic toys, coins and small household items being reported more often.^{7,8} Nevertheless, any lesion, foreign body or malformation in a child results in anxious parents seeking medical



Figure 2. The white lesion.

and/or dental advice and intervention. Occasionally, professionals thus encounter intriguing cases which have been rarely reported in the literature. The reporting of rare conditions helps to expand our knowledge base and to alert clinicians to possible variations and new conditions that should be included in their differential diagnosis. It is the purpose of this report to present a rare case of a male infant with an unusual white lesion.

Case history

A 10-month old male infant was referred by a paediatrician because of a



Figure 3. Upper anterior occlusal radiograph showing normal root development of the maxillary primary incisors.

malformed tooth. The mother had noticed a small white swelling in the anterior region of the maxilla that morning. By late afternoon, the swelling had apparently increased in size and the mother was urged by the paediatrician to seek dental advice. The mother reported that the pregnancy had been normal and the baby's medical condition was unremarkable. The intra-oral examination revealed a white mass in the maxillary right central incisor region which was approximately 5 mm in diameter, firm in consistency and adherent to the mucosa (Figures 1 and 2). The colour of the mucosa surrounding the lesion and the morphology on the buccal aspect of the maxillary alveolus were normal. The mandibular primary central incisors were erupting and no other soft or hard tissue abnormalities were evident. Radiographic examination revealed the developing tooth germs of the maxillary incisors, and the white mass which was observed clinically was not evident on the upper anterior occlusal radiograph (Figure 3). The differential diagnosis included a bony sequestrum, inclusion cyst and an eruption cyst. The parents were reassured and advised to monitor the lesion and to report any changes to the lesion. The baby was scheduled for a review appointment in a month's time.

Three weeks later, the parents returned to report that the mass had exfoliated spontaneously and had been recovered (Figure 4) and was in a plastic bag. An intra-oral examination revealed

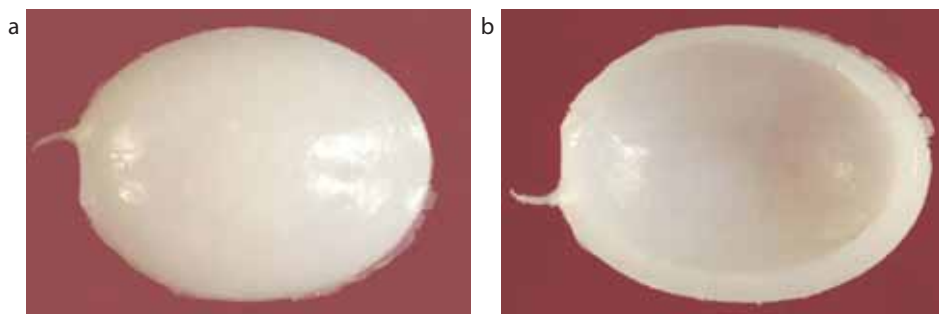


Figure 4. The white lesion after spontaneous shedding was a hemispherical amorphous structure 10 mm x 5 mm in diameter. It had (a) a convex and (b) a concave surface.

complete absence of the white lesion and the adjacent soft tissues were of normal colour and healthy. The white-coloured specimen was hemispherical and measured 10 mm x 5 mm in diameter and had a firm consistency. It was sent for histopathological examination with a provisional clinical diagnosis of bone sequestrum. It was subsequently reported to be acellular and amorphous. It failed to take up H & E stain. As it did not resemble any known bodily tissues, it was diagnosed as a foreign body.

Discussion

The possibility of a foreign body may be underestimated as it is not always clearly mentioned in the history given by the parents of the child or, more often, simply because the parents have forgotten at the time of the initial examination. Sometimes spontaneous healing of the lacerations in the oral cavity may also conceal the history indicative of a foreign body.⁴ Therefore, a careful examination of the oral cavity is essential when a mass or lesion is found in the oral cavity of a newborn or infant. This is imperative to formulate a differential diagnosis since this will help guide further evaluation of the condition and the subsequent management.

Oral conditions that were considered in the differential diagnosis of the presented case were Epstein's pearls, Bohn's nodules, dental lamina cysts or gingival cysts, natal/neonatal teeth, teratomas, bony sequestrum and granular cell myoblastoma (Table 1). White-coloured lesions of the soft tissues usually have that appearance because of a superficial

coating of keratin or because they contain keratin; hence the white colour. For example, Epstein's pearls,⁹ which are found in approximately 75% to 80% of newborns, occur close to the midline of the palate. Dental lamina cysts, which are found on the crest of the alveolar ridges, most commonly are seen bilaterally in the region of the first primary molars. They result from remnants of the dental lamina. Bohn's nodules² are remnants of salivary gland epithelium and are usually found on the buccal and lingual aspects of the ridge, away from the midline. Epstein's pearls, Bohn's nodules, and dental lamina cysts typically present as asymptomatic 1 mm to 3 mm nodules or papules. They are smooth, whitish in appearance, and are filled with keratin. They rupture spontaneously as they grow and their walls merge with the surrounding epithelial surface of the gums.¹⁰ Therefore, treatment is not always necessary, as these cysts are innocuous and disappear after a few weeks/months. However, some authors suggest easing their resolution by a gentle digital massage on the affected area, while others find any treatment useless or even noxious.¹¹ Nevertheless, it is important to reassure the parents to help them understand that a conservative approach is sufficient and a review appointment in one month's time is reasonable.

The other conditions considered in the differential diagnosis were an eruption cyst, natal/neonatal teeth, teratoma or a bony sequestrum. Though not overtly white, the colour of an eruption cyst varies from blue-black or brown, depending on the amount of blood in the cystic fluid; the blood being secondary to trauma. More often, treatment remains unnecessary as it disappears within a few weeks as the

Mass	Location	Description	Management
Epstein's pearls	Gingiva, midline of the palate or at the junction between the soft and hard palate.	White keratin-filled cystic lesion lined with stratified epithelium arising from epithelial remnants entrapped along the lines of fusion of the different palatal components during embryogenesis.	Treatment unnecessary as they disappear within few weeks/months.
Bohn's nodules	Vestibular or lingual surfaces of the alveolar ridges and on the palate.	Yellowish-white nodules arising from remnants of minor mucous salivary glands.	Treatment unnecessary as they disappear within few weeks/months.
Dental lamina cysts or gingival cysts	Crest of the maxillary and mandibular alveolar ridges.	White or grey cystic enlargement derived from remnants of the ectodermal component of the tooth bud, the so-called dental lamina.	Treatment unnecessary as they disappear within few weeks/months.
Natal teeth	Mandibular incisor area	May be single or in pairs	No treatment or extraction when the tooth is extremely mobile.
Bony sequestrum	Anywhere in the oral cavity	Bony tissues of varied sizes	Surgical removal
Teratoma	Palate	Tissues derived from all three germ layers; the tumour may or may not contain body parts.	Surgical excision
Eruption cyst	Maxillary and mandibular alveolar ridges	Soft tissue cyst resulting from a separation of the dental follicle from the crown of an erupting tooth. Colour of these lesions can range from normal to blue-black or brown depending on the amount of blood in the cystic fluid. The blood is secondary to trauma.	Treatment unnecessary as they resolve within few weeks/months.
Granular cell (myoblastoma) tumour	Alveolar ridges, lingual dorsum, soft palate, uvula, labial mucosa, floor of the mouth and gingiva.	Sessile, painless, yellowish, firm swelling just beneath the surface epithelium less than 2 cm in diameter. Grows rapidly to become ulcerated and bosselated, and to achieve a size greater than 4–5 cm by the time of diagnosis.	Surgical excision

Table 1. Conditions considered in the differential diagnosis of the white lesion.

tooth erupts into the oral cavity. Conversely, drainage of the cystic contents would be necessary if the cyst gets infected. Natal/neonatal teeth do not necessarily need treatment unless they are extremely mobile, in which case extraction is the only viable option. Bony sequestrum and teratomas

require surgical removal to prevent undesirable complications, such as infection and impaction of adjacent teeth. Granular cell (myoblastoma) tumours usually appear as solitary lesions predominantly occurring on the anterior maxillary alveolar ridge, lingual dorsum, soft palate, uvula, labial

mucosa, floor of the mouth and gingiva.¹² These lesions show a benign behaviour, without any recurrence or metastasis having been reported. Spontaneous involution has been described and, when necessary, a surgical excision has been advocated.¹² However, based on the shape, the lesion in

the reported case most closely resembled a Bohn's nodule or an eruption cyst. The former was most likely due to the age of the child, although they tend to occur earlier in life.

Babies always use their mouth as the first line to discovery. They explore things with their mouth by putting anything they can hold into it.¹³ When first born, a baby's vision is limited, so he/she attempts to learn by using the other senses. Hearing and smell are limited in his/her information and exposure. Taste, on the other hand, incorporates the feel, smell and taste of the object. To soothe a crying infant, oral stimuli are the first lines of defence in the form of a feeding bottle or a pacifier. When teething becomes an issue, a baby is more prone to self-soothe and puts anything in his/her mouth in search of relief. Therefore, young children are at an increased risk of inhalation/aspiration of foreign bodies because of their reduced chewing capacity and higher respiratory rates.¹⁴ This may produce a wide range of clinical symptoms like coughing, choking, acute dyspnoea, fever and sudden onset of wheezing. It has been reported that foreign body aspiration is most lethal to children less than one year of age and remains the leading cause of accidental death in this age group.¹⁵⁻¹⁷ Therefore, it is imperative to educate the parent and/or the care-givers about the risks of leaving unsafe foods, toys, coins, or disk batteries in the reach of young children, making prevention the most effective treatment of foreign body injuries.¹⁷ Anxious parents must be discouraged from attempts to remove the foreign bodies by themselves as complications may occur as a result of attempts to remove the foreign body without the help of specialized personnel or proper conditions.¹⁶

Different forms of physical abuse, like head injuries, fractures, burns, severe bruising, bite marks, poisoning or suffocation have been discussed more often in literature. However, the use of oral foreign bodies as forms of child abuse is not well documented.¹⁸ Although the presented case is not an example of such foreign body abuse, it alerts the clinicians to such possibilities and initiates them to identify the markers of abuse, such as inconsistency in history,

evidence of injury elsewhere in the child's body, previous emergency attendances and history of injuries to siblings. Recognizing the risks of child abuse not only allows the clinician to make appropriate referral, but also prevents the child from further serious injuries.

Trying to make a definitive diagnosis of a white lesion in an infant can present a challenge to the paediatric dentist, as it did in this case. Although the mass appeared clinically to be white, the absence of the characteristics resembling any of the reported lesions in the literature essentially ruled out all the conditions that had been considered in the differential diagnosis. As with any lesion, the clinician should confirm the diagnosis to rule out a tumour; hence, the shed white mass was sent for histopathological evaluation, the findings of which were consistent with a foreign body. This case serves to remind all clinicians that the unexpected can occur and that, in children, the differential diagnosis should always include the possibility of a foreign body that might have become embedded into the mucosa, which later may be shed spontaneously.

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