



PREVALENCE AND CLINICAL OUTCOMES OF ORAL LESIONS IN NEWBORNS: A RETROSPECTIVE ANALYSIS OVER THREE YEARS IN POPULATION OF KATHUA

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Abstract

Objective: The objective of this study was to determine the prevalence and clinical outcome of lesions of the oral mucosa from birth to two and half years of age in pediatric patients in a span of three years in district kathua .

Materials and Methods: A total of 299 patients including infants from newborn to two and half years of age were evaluated from the Outpatient department of dental surgery GMC kathua in a span of three years from January 2022 to January 2025. The mucosal lesions were regularly documented. The data were presented as percentages and for categorical comparisons Chi-square or Fishers Exact test were used. A P-value less than 0.05 was considered statistically significant.

Results: Of the 299 infants, mucosal lesions were seen in only 63 (21.27%). In the study, the most common lesions were candidiasis (9.6 %), Ebstein's pearls (6.3%), and geographic tongue (3.01%) Bohns nodule(2%). The frequency of children with mucosal alterations was higher in the group of children from two to twelve months.

Conclusions: Although the lesions that were found the most in our study were benign lesions, unrelated to systemic diseases, we still believe that oral mucosal lesions can be a sign of a systemic or dermatological disease in infants, which affects the oral feeding of the infants. Routine examination of the oral mucosa should be a part of the pediatric examination.

Key words: Infant, lesion, oral mucosa time, concomittant diseases, familial dermatological diseases, use of pacifier, and nutrition.

Introduction

The newborn period represents a critical phase of development where the oral cavity undergoes rapid anatomical and functional adaptation. During this time, various oral lesions may be encountered, many of which are benign and self-limiting, while others may warrant clinical intervention. These lesions can include developmental cysts, benign tumors, eruptive anomalies, and mucosal conditions that arise due to embryological remnants or perinatal trauma. Though most of these lesions are innocuous, their clinical presentation can be alarming to parents, often leading to anxiety and unnecessary medical consultations. An understanding of the clinical characteristics, differential diagnoses, and management protocols of these lesions is essential for pediatricians, neonatologists, and dental professionals to reassure parents and provide appropriate care. Timely recognition can also help in distinguishing normal developmental findings from pathological conditions such as neonatal candidiasis or congenital tumors like epulis. Furthermore, some oral lesions may serve as early indicators of systemic conditions or congenital syndromes, making their accurate diagnosis clinically significant. Despite the relatively frequent occurrence of these lesions in neonates, there is a paucity of consolidated literature that classifies and discusses them comprehensively. This study aims to collate and present current evidence on commonly observed oral lesions in newborns, focusing on their clinical features, diagnostic considerations, and therapeutic approaches. Such an effort will enhance clinical awareness and promote evidence-based decision-making in neonatal oral healthcare.

Materials and Methods:

1. Inclusion criteria:

All the patients aged between 0 months to three years who visited OPD of department of dental surgery at GMC kathua

All patients whose guardians have given consent to take part in study

2. Exclusion criteria:

Uncooperative patient

Patients with underlying systemic disease

The following data were obtained:

1. age,
2. gender,
3. body weight
4. height
5. form of delivery
6. usage of pacifier
7. type of feeding (breastfeeding, bottle usage),
8. dermatological, systemic, genetic disease diagnosis, if any drug usage,
9. lesions of oral mucosa, and the number and location of the affected oral mucosa.

Ethical committee approval

In this study, an approval was obtained from the ethical committee of GMC kathua in year 2022

Statistical analysis

Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) 11.5 software (SPSS Inc., Chicago, IL, United States). Although continuous data were shown as mean±standard deviation (minimum– maximum), nominal data were expressed as the number of cases and percentage. The prevalence of each lesion and 95% confidence intervals were calculated. Whether the differences in lesion prevalence regarding age and gender groups were statistically significant or not were evaluated by the Chi-square test. A P-value less than 0.05 was considered statistically significant.

Results

A total of 299 infants were examined: 154 (51.5%) males and 145 (48.5%) females. The infants were divided into three age groups: 0 – 1 month old, with 22 (7.4%) patients, 2 – 12 months old, with 216 (72.4%) patients, and 13 – 24 months old, with 61 (20.4%) patients. Four different mucosal lesions were diagnosed and the most common lesions were candidiasis (9.6%), Epstein's pearls (6.3%), geographic tongue (3.01%) and Bohn's nodule (2%). The lesions found and the prevalence findings by age and sex of groups. The results of this study showed that 21.07% of the patients examined had oral mucosal lesions, without significant difference related to sex. The frequency of children with mucosal lesions was higher in the group of children from 2 – 12 months. On the other hand, prevalence was not associated with race-ethnicity. Candidiasis were prevalent in children from 2 – 12 months old. It occurred in 9.6% of the children, of whom 12.4% were nourished with breastfeeding. Breastfeeding with ($P=0.025$) or without bottle ($P=0.048$) are statistically significant for candidiasis as shown in No association between economic status and frequency of children presenting with oral mucosal lesions was found in this study ($P=0.648$).

Discussion

In the face of the numerous alterations that can arise in the mouth of children, the professional should be able to detect the lesions, while conducting the appropriate and correct diagnostic treatment. A complete oral examination is an essential part of any dermatological and pediatric examination. Unfortunately, the oral cavity is frequently examined in a fleeting manner, particularly in the context of an uncooperative child, especially 0 – 2 years old

Differential Diagnosis :

Given the clinical similarities of many neonatal lesions, appropriate differentiation is essential. Some important considerations include

- Epstein Pearls vs. Candidiasis While both may present as white oral lesions, Epstein pearls are discrete, firm cysts that cannot be wiped off and are asymptomatic, whereas candidiasis lesions may appear more widespread and are often associated with feeding difficulty or irritability.

- Congenital Epulis vs. Pyogenic Granuloma Congenital epulis is typically present at birth, does not bleed readily, and is pedunculated. Pyogenic granuloma is rare in neonates and more prone to bleeding.

- * Eruption Cyst vs. Hemangioma A bluish lesion on the alveolar ridge may palpation, transillumination, and history of tooth eruption help distinguish eruption cysts.

- Riga-Fede Disease vs. Traumatic Ulcer Both may present as tongue ulcers, but Riga-Fede is usually associated with natal or neonatal teeth and repetitive trauma from suckling.

- * Lymphangioma vs. Mucocele Mucoceles are uncommon in neonates and usually found in older children; lymphangiomas have a pebbly surface and may be more diffuse.

Early and accurate differentiation prevents misdiagnosis and avoids unnecessary interventions. A detailed clinical history, including birth events, feeding behaviors, and maternal health, along with careful examination, is essential for distinguishing between self-limiting and pathological conditions.

DIAGNOSTIC AND MANAGEMENT STRATEGIES:

In neonates, the diagnosis of oral lesions primarily relies on clinical examination supported by detailed birth and medical history. Due to the limited ability to perform invasive procedures or radiographs in this age group, clinicians must depend on visual characteristics, location, texture, and progression of the lesion to arrive at a working diagnosis. Careful

Diagnostic Approach

1. Visual Inspection and Palpation Most benign neonatal oral lesions exhibit characteristic appearances that can be differentiated with a trained eye. For example, Epstein pearls are firm, white papules along the mid-palatal raphe, while Bohn's nodules appear on alveolar ridges.

2. Parental History Details regarding onset, feeding difficulties, birth trauma, medications, or maternal infections can offer critical clues in suspected candidiasis or Riga-Fede disease.
3. Observation Period In most developmental cysts and benign masses, clinical observation over a few weeks can be both diagnostic and therapeutic, as these lesions typically regress spontaneously.
4. Adjunctive Tests (Rarely Needed) When the diagnosis is uncertain or lesion persists, tests such as swab cultures (for suspected candidiasis), ultrasound (for vascular lesions), or referral biopsy may be considered.

Role of Parental Counseling:

Education of caregivers is critical in neonatal lesion management. Reassurance that most lesions are self-limiting reduces parental anxiety and prevents unnecessary pharmacologic or surgical interventions. Paediatricians, neonatologists, and dentists should collaborate to promote early oral evaluation as part of newborn screening.

When to Refer

Referral to a pediatric oral pathologist or maxillofacial surgeon is warranted if:

- The lesion grows rapidly
- * Impairs feeding or breathing
- * Persists beyond 4–6 weeks
- * Ulcerates or bleeds spontaneously
- * Suspicion of syndromic or malignant process arises

In this study, the oral mucosal alterations have been diagnosed in a single examination of each child. The frequency of children with oral mucosal lesions and the prevalence of each lesion show a wide range of literature and this may be a result of the difference of geographic areas, sociodemographic characteristics of the population studied, and the clinical diagnostic criteria. Our findings indicated a significant difference in the frequency of children presenting with oral mucosal lesions according to the age group, and were not related to sex, birth method, or birth time. Higher frequency was found in children 2 – 12 months old (21.3%). The most prevalent oral lesions found in this study were candidiasis (10.70%), Epstein's pearls (2.68%), and geographic tongue (2.68%). The most common lesion found in the study was candidiasis, a fungal infection caused by *Candida albicans*. This finding was in conformity with the information given by Castro et al. and Sonis,[1] who described the condition as being quite common in neonates, especially around the seventh day of life, due to birth contact with an infected mother. In our study, oral candidiasis was higher in infants who were breastfeeding compared to bottle usage. However, in the other studies,[6] bottle use was a significant predictor of both maternal and infant oral colonization. There are several possible explanations for this association. The simplest hypothesis is that the bottle acts as a vector for the *Candida* in the environment. However, if this was the principal mechanism, they would have found a similar association with pacifier use, which they did not. Hence 40 – 60 % of the infants carry the organism in their mouth, with 10 to 24% of the infants developing oral thrush within the first 18 months of life.[6]

The term Epstein's pearls is applied most accurately to cysts of the oral mucosa that occur at the junction of the hard and soft palates. These likely represent remnants of epithelial tissue entrapped during palatal fusion. Clinically, all of these cysts appear similar, as small, white papules or translucent cysts. No treatment is indicated because they resolve spontaneously.[7] Geographic tongue is a benign tongue condition affecting 2% of the population.[8] It is one of the most common conditions of the oral mucosa clinically observed in children.[1,9] The cause is unknown. The condition may be hereditary. Clinically, the dorsum of the tongue has well-defined erythematous regions of depapillation, each surrounded by a raised white edge. Although usually asymptomatic, soreness sometimes occurs, especially with salty or spicy foods.[10] It was the second most frequent condition, together with Epstein's pearls, found in this study. Effective treatment for the geographic tongue is yet not known, as its etiology has not been well elucidated. There has been a debate on whether or not the

condition is an oral manifestation of psoriasis. Our results should also be used as baseline data for future studies involving different children populations in order to obtain more information about the prevalence of oral mucosal alterations and the factors associated with them.

Conclusion

What is already known on this topic and what this article adds? We think that oral mucosal lesions other than benign lesions, especially in children, are important to diagnose as they can be clues to systemic diseases. Although, there are some physiological, benign lesions of the mucosa that should be differentiated from the other lesions that need treatment. Through our search of the literature, there is no study on the age group of 0 – 2 year old children. Therefore, this study adds, the frequently seen oral mucosal lesions in this age group to the literature. Childhood oral mucosal lesions are one of the rare topics that pediatricians, dentists, and dermatologist are interested in. To make a true diagnosis, it is important to avoid unnecessary research and treatment.

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