Pediatric Benign Soft Tissue Oral and Maxillofacial Pathology

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KEYWORDS

• Pediatric • Oral surgery • Oral pathology • Neoplasms • Oral biopsy • Oral diagnosis

KEY POINTS

- Pediatric oral and maxillofacial pathologies are typically categorized by presenting age group.
- Most pediatric pathologies are benign or secondary to soft tissue trauma.
- Because of their benign nature, management is straightforward, usually palliation or simple surgical excision.

Several oral lesions, systemic manifestations, and soft tissue pathologies occur in the pediatric population. Many of these are unique in that they correlate with specific definable age groups. These presentations are significant in that the period from birth to adolescence is the most dynamic period of growth and development, and small changes have the capacity for long-lasting impact. It is also a sensitive time for both child and parent. Fortunately, most pediatric pathology is benign and does not require extensive surgical intervention. In a study performed by Jones and Franklin,[1] over the course of a 30-year period, only 1% of pathologic specimens submitted for children 16 years and younger were found to be malignant. This article discusses the most common types of benign pediatric soft tissue pathologies based on age range, including their clinical appearance, diagnostic features, and treatment algorithms (**Box 1**).

NEONATES/INFANTS

Newborn Palatal Cyst

It is common to find developmental palatal cysts in the newborn. Usually they present as asymptomatic 1 to 3 mm, white-yellowish papules that appear along the palatal midline. They frequently occur in clusters, however, they can also occur as single lesions. Two common examples are Epstein pearls and Bohn nodules. Epstein pearls are found in approximately 75% to 80% of newborns. They occur along the median palatal raphe and arise from epithelium that is trapped along the line of fusion of the palatal shelves during embryogenesis. Bohn nodules, also common, occur on the palate of newborns, likely from developing minor salivary glands. They are usually found on the buccal and lingual aspects of the ridge, removed from the midline. Histologically, both are keratin-filled cysts. As a result, they require no treatment and usually resolve on their own within the first 3 months of life.[2–4]

Hemangioma

Hemangiomas are the most common congenital vascular tumors of infancy, with highest incidence in white women.[5] They are usually noticed within the first 2 months after birth as bright red raised lesions that are firm and rubbery to palpation, comparable with the texture and appearance of a

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Box 1
Common pediatric benign soft tissue lesions

Neonates/Infants
Newborn palatal cysts
- Epstein pearls
- Bohn nodules

Hemangiomas
Lymphangiomas
Congenital epulis
Melanotic neuroectodermal tumor of infancy

Age 2 y and Older
Fibroma
Pyogenic granuloma
Peripheral giant cell granuloma
Peripheral ossifying fibroma
Parulis
Eruption Cyst/Eruption Hematoma
Mucocele
Gingival hyperplasia
- Inflammatory
- Medication-induced
- Spongiotic
- Idiopathic
- Leukemic infiltrates

Recurrent aphthous ulcers
Herpes simplex virus
- Primary
- Recurrent

Macroglossia
Ankyloglossia
Soft tissue anesthesia trauma

strawberry. Sixty percent of these occur in the head and neck, 80% of which are solitary lesions. Their distribution generally correlates with regions of embryologic fusion.[6] During the subsequent 6- to 10-month period, they reach their peak growth period and begin to involute. About half of all hemangiomas completely resolve by age 5 years and 90% resolve by age 9 years. As a result, treatment usually consists of observation only. When the lesion is in a region that could cause local or life-threatening complications, medicaments are the treatment of choice. Systemic steroids have been shown to reduce the size of larger hemangiomas, with a 70% to 90% response rate. Intralesional steroids, topical steroids, and sclerosing agents have been shown to be efficacious for smaller localized lesions. Intravenously administered vincristine can be used for complicated tumors that are unresponsive to systemic steroids.[2] Most recently, topical nanopropranolol has been introduced as a treatment modality for hemangiomas as well.[6]

Lymphangioma

Lymphangiomas, also known as cystic hygromas and lymphatic malformations, are benign tumors of the lymphatic vessels. They are believed to be malformations that arise from portions of lymphatic tissue that do not communicate normally with the rest of the lymphatic system.[2] Seventy-five percent occur in the head and neck region, which harbors the body's richest lymphatic bed.[7] Half of all lesions are noted at birth and about 90% develop by 2 years of age. Large lymphangiomas can often lead to airway compromise, and therefore treatment usually consists of sclerotherapy and surgical removal. In cases where it is not possible to remove the entire tumor because of proximity to vital structures, tracheostomy is used to secure the airway, and ultimately, serial debulking procedures are performed to reduce the size of the lymphangioma (**Fig. 1**).[8]

Congenital Epulis (Congenital Epulis of the Newborn; Congenital Granular Cell Lesion)

This is a more uncommon pathologic lesion that occurs almost exclusively on the alveolar ridges of newborns, most commonly seen in girls. Clinically it appears as a distinct polypoid mass of tissue that is similar in color and consistency to normal mucosa. Generally, they are less than 2 cm in size, but can interfere with normal respiration or feeding, even though 90% of the time they occur in the anterior maxilla at the lateral incisor-cuspid region.[2,3]

Treatment is surgical excision of the epulis, and even with incomplete removal, these masses have not been shown to recur.[2] If necessary due to excessive size, they can be excised hours to days after birth under general or local anesthesia, or in some cases during the actual delivery, if the lesion was identified in utero.[9–11]

Melanotic Neuroectodermal Tumor of Infancy

These tumors are extremely rare, but they are seen in the infant population; 82% of the time these tumors occur in infants less than 6 months old, with a slight predilection for boys. They most frequently occur in the maxillofacial region, including the maxilla (68%–80%), skull (10.8%),