Case Report

Characteristics of a Pediatric Patient With a Capillary Hemangioma of the Palatal Mucosa: A Case Report

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Abstract: *The purpose of this study was to report the case of a capillary hemangioma in a 12-month-old female. The lesion appeared: (1) erythematous to deep purple in appearance; (2) dome-shaped; (3) partially blanched with pressure; and (4) rapidly enlarged in the oropharyngeal region. Magnetic resonance imaging studies demonstrated the affected area and adjacent soft tissues. The lesion was diagnosed as a capillary hemangioma through histopathology. Early detection and biopsy is necessary to determine the clinical behavior of the tumor and potential dentoalveolar complications. (Pediatr Dent 2007;29:239-42)*

KEYWORDS: HEMANGIOMA; CAPILLARY; CASE REPORT; PALATAL

Capillary hemangiomas (CHs) are one of the most common benign vasoformative tumors of infancy and are present in a variety of fashions, occasionally appearing in the oral cavity. These lesions are characterized by an excess of blood vessels in an area of submucosal connective tissue. Presentation may occur within the first few weeks after birth and may become more apparent during life.[1] Clinically, CHs appear as flat or raised, red-blue lesions and are generally solitary. They are soft to touch and sessile or pedunculated and may be smooth or bulbous in shape. These tumors exhibit a rapid growth phase and slowly involute.[2] Histologically, CHs are identified and characterized by endothelial cell proliferation.[3] Although the head and neck are common sites, oral cavity lesions are rare entities.[4] In the oral cavity, CHs may be intraosseous and intramuscular as well as mucosal.[5]

The word "hemangioma" has been widely used in the medical and dental literature in reference to a variety of different vascular anomalies, which has traditionally led to a significant amount of confusion regarding the nomenclature of these lesions.[6,7] In 1982, Mulliken and Glowacki described a classification scheme which is presently accepted. These vasoformative tumors are classified under 2 broad headings of hemangioma and vascular malformation. Hemangioma is further subclassified based on their histological appearance as: (1) capillary lesions; (2) cavernous lesions; and (3) mixed lesions.[6]

Although capillary hemangiomas are benign and innocuous, significant subsets are life altering. Complications may include: (1) pain; (2) scarring; (3) disfigurement; and (4) (less commonly) infection and anemia secondary to bleeding.[8] If superficial lesions are not an esthetic problem and not subject to masticatory trauma, they may be left untreated.[9]

The purpose of this case report was to visualize and present the clinical, radiographic, and histopathologic features of a pediatric patient with capillary hemangiomas.

Case report

The pediatric patient was born to a 36-year-old Hispanic mother with a medical history significant for hypertension and hypothyroidism. The infant was delivered at 27 weeks via Caesarian section, admitted to the neonatal intensive care unit, and monitored for 3 months. During an examination by otolaryngology, a slightly compressible mass was noted by the left anterior hard palate. A magnetic resonance image (MRI) taken at 2 months old revealed a homogeneous enhancing elliptical mass arising from the palate measuring 1.3 cm x 1.9 cm x 1.3 cm. An incisional biopsy was also taken at 2 months old, and the mass was diagnosed as a hemangioma. At age 1, the patient was referred to the Division of Pediatric Dentistry, Columbia University College of Dental Medicine, New York, NY, to evaluate the hemangioma and ensure proper development of the dentition.

No abnormality or asymmetry was noted during the facial examination. An intraoral examination revealed a sessile dome-shaped soft tissue mass on the upper left posterior palate (Figure 1). The surface appeared erythematous and

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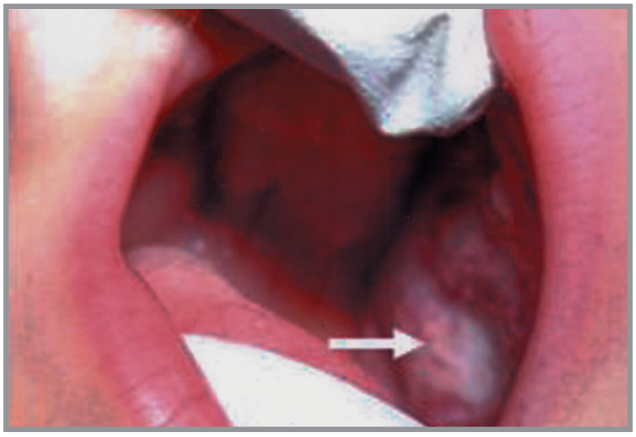

Figure 1. Left palatal dome-shaped capillary hemangioma at 12 months of age.

blanched slightly upon pressure, and the lesion was fluctuant posteriorly to palpation. The eruption pattern appeared to be delayed with only 2 lower incisors. The rest of the oral examination, however, was unremarkable.

The parent brought the child back to the dental clinic at 18 months old and was concerned that the mass was increasing in size. An intraoral examination revealed that all primary incisors were developing and the hemangioma was larger. Since an increase in size is not typical for a hemangioma at this age, a new MRI was ordered and the mass was biopsied again via otolaryngology. The MRI (Figures 2 and 3) revealed a mass measuring 2.5 cm x 2.3 cm x 1.5 cm. The hemangioma had increased in size and was consistent with the lesion's slowly growing nature. The mass was extending in 2 areas between the adjacent maxillary teeth, probably due to proliferation of abnormal venous channels. It did not appear, however, to be remodeling the teeth or reaching the medial cortex of the left maxilla.

Upon examination during the incisional biopsy, the mass was grayish in color with specks of red, measuring 2.5 cm x 3 cm. The biopsy revealed vascular proliferation, with capillary sized vessels with thick walls (Figures 4). The diagnosis of capillary hemangioma was confirmed. At 22 months, the lesion appeared to have decreased in size. No intervention was indicated at that time, and it was decided that the mass will be monitored on a regular basis.

Discussion

CHs are the most common benign soft tissue tumors of childhood. They occur in 5% to 10% of infants (all anatomic sites), often within the first few weeks of life.[10] Female infants are 3 times more likely to have hemangiomas than male infants, and the incidence increases in premature neonates. The incidence rises to 23% in preterm infants weighing less than 1,000 g.[11] CHs appears to be less common in those of African and Asian decent.[12] There is also a link between maternal hypertension during pregnancy and associated low birth weight, as in this case.[11] Preterm birth is associated with adverse effects on the vascular system and an increased frequency of hemangiomas due to an early defect in the morphological development of the vascular system.

CHs may occur as:

1. superficial, present as bright red to scarlet and dome-shaped, which may partially blanch with pressure and are noncompressible on palpation;
2. deep, usually present as subcutaneous, partially com pressible nodules with a bluish hue; or

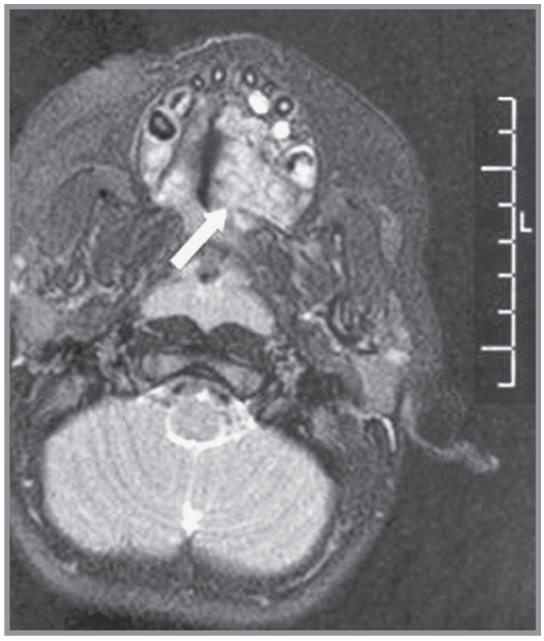

Figure 2. MRI showing left side mass.

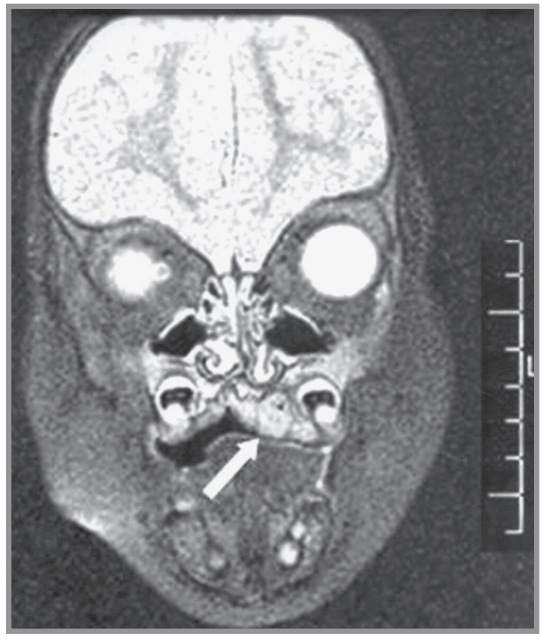

Figure 3. MRI showing three lobes

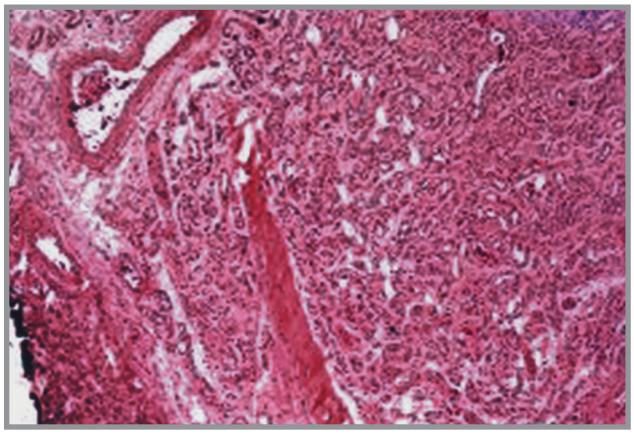

Figure 4. Thick pink band of fibrous tissue surrounded by vascular proliferation in capillary hemangioma.

3. mixed, present as both superficial and deep components and occurring in up to 30% of patients.[13]

The lesion in the present case was a superficial lesion.

This natural history of CHs is distinct. It is notable for a period of: (1) growth (the proliferative phase); (2) stability (the plateau phase); and (3) spontaneous regression (the involution phase). The majority of capillary hemangiomas first become evident at 2 to 3 weeks of life, with continued growth until around 9 to 12 months of age. The first 6 months is the period of most rapid growth, followed by a slower growth phase for the second 6 months of life. The first sign of the involution phase is marked by a change in color from bright red to dark red to gray.[14] Fifty percent of hemangiomas resolve by age 5, while more than 90% resolve by age 9 to 10 years of age.[15] In the present case, the lesion's size at 22 months has slightly decreased in size and the patient will be recalled and frequently monitored.

Histologically, the hemangioma's stage can be determined by the size of the capillary lumen. During the early proliferative stage, plump endothelial cells are present, obscuring the lumen of the capillaries. At later stages, the endothelial cells are more flattened, allowing the lumen to be more visible. During the involution stage, the vascular spaces are much more dilated and are more widely spaced.[13,14]

Decisions regarding treatment of CHs must include factors such as the lesion's: (1) size; (2) location; (3) age; and (4) growth phase. Major goals of management include:

1. prevention or reversal of life- or function-threatening complications;
2. avoidance of overly aggressive procedures; and
3. adequate prevention or treatment of ulcerations to minimize:
   a. infection;
   b. pain; and
   c. scarring.[16]

Nonintervention is the most useful principle in treatment for the majority of CHs. Parents are offered anticipatory guidance and reassurance that, although the lesion may enlarge initially, it will regress over time. A clinical examination is performed on a regular basis, and serial photography may be useful to document the gradual spontaneous involution, which may be subtle and underappreciated by parents.[16] Intervention is warranted for hemangiomas that may interfere with vital structures or function. They are most often treated with systemic corticosteroids.[17,18] Hemangiomas that do not respond to corticosteroids are treated with interferon.[19] Other less common treatment modalities include: (1) pulse dye laser therapy; (2) excisional surgery; and (3) embolization.[20,21]

Despite their benign nature and behavior, CHs in the oral cavity are of clinical importance and require appropriate clinical management. Because both the American Academy of Pediatric Dentistry and American Academy of Pediatrics recommend that dental visits begin at age 1, pediatric dentists need to be aware of these lesions because they may pose serious bleeding risks.

Conclusions

A capillary hemangioma is a benign tumor and may present in the oral cavity often appearing after birth. A clinical report of an infant followed from 12 to 22 months was presented. The dome-shaped lesion: (1) was erythematous in color; (2) was semi-compressible upon palpation; and (3) initially expanded rapidly into the oral cavity.

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Abstract of Science of Literature

Titanium Screws and Cleidocranial Dysplasia

Cleidocranial dysplasia (CD), although infrequent, can present to the pediatric dentist. In this article, a patient with CD is presented demonstrating the efficacy of titanium screws for anchorage to induce eruption of impacted permanent successors. The patient was a boy approximately 11 years of age with multiple impacted permanent teeth. Panoramic radiographs showed retained primary teeth and impacted supernumerary and permanent teeth. Supernumerary teeth and retained primary teeth were extracted and the impacted incisors were surgically exposed with bracket placement. Two titanium screws were implanted in the palate without incisions or flap surgery under local anesthesia. A palatal arch appliance was placed and orthodontic traction was begun 4 weeks after surgery with an elastic chain. Three impacted incisors erupted into the mouth after 4 months of traction. ***Comments:*** *This was an interesting treatment approach for retraction of impacted incisors on an adolescent with CD, reducing treatment time and psychological stress.* ***RKY***

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