Consequences of Facial Hemangioma with Regard to Dental Treatment

Abstract
Hemangioma is a benign vascular tumor that affects 3%–10% of the population and usually does not require specific treatment due to spontaneous regression. The purpose of this paper is to present a case report of a child having been born prematurely and diagnosed with hemangioma in the head and neck, emphasizing the dentofacial changes and treatment used to provide care. Severe fibrous scars were found in the perioral region and below the ear that limited the patient’s ability to open her mouth. The child exhibited anterior open bite as well as dental caries in the lower jaw, hypomineralization, and enamel hypoplasia. Treatment consisted of dietary and oral hygiene orientations, dental prophylaxis, topical 1:23% acidulated phosphate fluoride gel, removal of the carious tissue, sealing with glass ionomer cement, and extraction. Dentists need to have knowledge on hemangioma for a proper diagnosis and the optimization of dental treatment.

Keywords: Child, dentist, head and neck, hemangioma, tumor

Introduction
Hemangioma is a benign vascular tumor with a prevalence of 5%–10% in children <1 year of age.[1] Although the pathogenesis is not yet well understood, dysregulation of vascular homeostasis due to developmental abnormalities in the first trimester of pregnancy is suggested.[2] Higher incidence rates seem to be associated with the female sex, premature birth, a low birth weight, preeclampsia, maternal multiparity, advanced maternal age, in vitro fertilization, and Caucasian ethnicity.[3] Complications of this tumor include ulceration, bleeding, functional impairment, and permanent facial alterations.[4]

Most patients do not require specific treatment since hemangioma has spontaneous regression and should only be monitored clinically without any therapeutic intervention. However, factors such as size, location, presence of ulceration, esthetic considerations, and functional and psychosocial implications can lead to an indication for treatment, which may be cryotherapy, sclerosing agents, corticosteroids, surgical excision, embolization, radiation therapy, laser therapy, interferon-alpha, and propranolol.[5]

As 40%–60% of hemangiomata are located in the head and neck region,[4] it is important for pediatric dentists to know how to manage such cases. Thus, the purpose of this paper was to report the impact of hemangioma in the head and neck region on the oral health and dental treatment of a child.

Case Report
A female Caucasian patient visited the dental clinic for treatment at the age of 4 years in 2013. The mother reported having had high blood pressure during pregnancy, and the child was born prematurely at 29 weeks. No abnormalities were evident following birth, but alterations emerged on the child’s face at 2 months of age [Figure 1]. After severe tumor growth, drug treatment was initiated with interferon α (500,000 IU/m²/dose), Prednim (2 mg/kg/day), and propranolol (2 mg/kg/day).

The hospital records revealed the absence of cognitive disorders or physical problems beyond severe fibrous scars in the perioral region and below the ear that limited the patient’s ability to open her mouth. The oral examination revealed anterior open bite due to the habit of pacifier sucking and biting objects, and dental caries was found on the primary mandibular first and second molars, along with hypomineralization (primary mandibular left first molar) and enamel hypoplasia (primary mandibular right first molar) [Figure 2].

How to cite this article: Santin GC, Guimarães KS, de Oliveira SS, da Silva RA, Nelson-Filho P, Palma-Dibb RG, et al. Consequences of facial hemangioma with regard to dental treatment. Contemp Clin Dent 2017:8:185-7.
The patient was classified as having a high risk of caries due to the considerable consumption of fermentable carbohydrates and the presence of active carious lesions. Both the mother and child received instructions on oral hygiene and diet. During clinical care, the child exhibited behavioral difficulty and required physical restraint by the mother, who was collaborative and participative.

After the radiographic examination (panoramic and periapical radiographs), the following treatment plan was determined: dietary and oral hygiene orientation, dental prophylaxis, topical 1:23% acidulated phosphate fluoride gel, removal of carious tissue, sealing with glass ionomer cement, and extraction.

The patient was followed up clinically with preventive strategies, during which the habit of pacifier sucking was eliminated, but anterior crossbite developed [Figure 3].

The present case report was approved by the ethics committee (number 2014.1.905.58.0).

Discussion

The patient in the present case report had factors associated with a higher prevalence rate of hemangioma, such as female sex, maternal multiparity, preeclampsia during pregnancy, premature birth, and Caucasian race. As similar to descriptions found in the literature, there were no facial deformities at birth and the emergence of clinically visible abnormalities occurred after 2 months of life, with fast evolution[2] and assuming considerable proportions.

Tumor growth caused ulcerations and difficulty feeding. Due to the size of the tumor, drug therapy was initiated to accelerate the regression process, avoid discomfort, and minimize the psychological impact. As indicated in the literature, the drugs of choice were prednisone (corticosteroids) and interferon alpha.[5] Propranolol is also indicated for the regression of hemangioma. However, the use of this drug may be associated with increased prevalence of tooth decay, probably due to the presence of sugar in its formulation or its effect of decreasing salivary flow.[6]

In the present case, the occurrence of caries in the lower arch affected by the hemangioma may have been associated with difficulty swallowing and hygiene, causing food stagnation in direct contact with the mandibular teeth. Even after the regression of hemangioma, difficulty performing adequate oral hygiene remains due to perioral fibrous scar tissue, which limits mouth opening. Controlled routine professional monitoring is therefore important to avoid the development of further carious lesions.
In cases for which there is difficulty cleaning the oral cavity, the use of water jets and a small brush head is suggested to enable reaching the posterior region without requiring further opening of the mouth, and soft/extra-soft bristles with rounded tips should be used to avoid gingival trauma.[7] Moreover, the topical application of antimicrobial agents, such as chlorhexidine and fluorides, may be indicated.[8] Pediatric instruments, such as short shank burs and hand pieces with small heads, should be used to facilitate treatment.[7] In addition, the use of a rubber dam reduces the risk of injuring affected areas and is especially helpful with uncooperative children.

Dentists should be aware of possible bleeding during clinical interventions, which may endanger the life of patients with hemangioma in the head and neck in both the evolution and regression stages.[9] Dentists should therefore be attentive to sudden movements of the patient and avoid numbing the area. In cases for which anesthesia is needed, the farthest nerve block should be chosen and injecting the affected area should be avoided. Indeed, such anesthetic difficulties underscore the need for a preventive program for the maintenance of adequate oral health.

Hemangiomata can be found in the oral cavity in the region of the lips, tongue, buccal mucosa, and palate.[10] The diagnosis in such cases is often performed by a dentist. It is therefore important for dentists to be aware of hemangiomata for a proper diagnosis and the optimization of dental treatment.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

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