

## **Soft Tissue Hemangioma**

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### **Overview**

Soft tissue Hemangiomas are the most common soft tissue tumors that occur in early stages of development. True hemangiomas are specified by a growth stage, pin pointed by endothelial proliferation and hypercellularity, also by an involutonal stage. A superficial hemangioma appears as a bright red, slightly elevated, noncompressible plaque. According to the article: Oral Hemangiomas, “60 to 70 percent of hemangiomas occur in the head and neck region, OHs are relatively rare and most frequently involve the lips, tongue, buccal mucosa, and palate. OHs have also been noted in the mandible and maxilla (central hemangiomas) and within the masseter and other muscles of mastication (intramuscular hemangiomas) (Lyssy). Hemangiomas can occur in both infants and adults. In cases of infant hemangiomas, Superficial hemangiomas reach their maximum size by 6 to 8 months. A deep hemangioma can grow for 12-14 months. These lesions can shrink as the child grows, however lesions found on the lip tend to be more persistent.

### **Etiology**

According to the article: Surgical Treatment of Hemangiomas of Soft Tissue, “The etiology of this entity is unknown and some authors think it is a neoplasm whereas others think it is a hamartoma or malformation.” (Tang). Several other articles have claimed that the etiology is

unclear. Some hypotheses suggest that hemangiomas can be due to embolic placental endothelial cells that enter the fetal circulation after trauma or another cellular stressor and serve as stem cells. Other suggestions that Lyssy mentions in the article is “ Spontaneous, or inherited, loss-of-function mutations on chromosome 5q lead to the constitutive activation of angiogenesis, resulting in hemangioma formation. A third hypothesis is that hemangiomas develop due to the upregulation of vascular endothelial growth factor (VEGF) and glucose transporter 1 (GLUT1) production by nearby cells in response to hypoxic stressors. However, none of these hypotheses address the female predominance of hemangiomas or the predilection of these vascular tumors for the head and neck” (Lyssy). This further proves the uncertainty of the etiology.

### **Clinical Presentation**

Hemangiomas are soft, compressible masses that can present with significant variation depending on location and depth. Superficial lesions may demonstrate a prominent red hue and be described as lobulated, sessile, or pedunculated. Deeper lesions are often more difficult to visualize and may appear as a soft blue or violet discoloration distinct from surrounding mucosa (Lyssy). Patients note a change in the hemangioma over time as they proliferate, stabilize, and possibly regress. Patients with central hemangiomas or intramuscular hemangiomas may present with gingival bleeding, excessive bleeding after dental treatment, or increased teeth mobility.

### **Demographic**

Oral Hemangiomas affect up to 6.4% of infants, with limited data on estimated prevalence in older age groups. Oral Hemangiomas have a 3:1 female-to-male predominance and are more common in Whites. In a clinical study involving soft tissue hemangiomas of the extremities, it

was stated that “The age of initial onset of symptoms varied from 10 months to 56 years of age with the average being 18.6 years. In reviewing the 62 cases, the tumor was usually found to occur before the age of 20 years (55% ). 2. The ratio of male and female was 25:37. Five recurrent cases of hemangioma were found among the 62 cases (8%).” (Kang et al.). This explains demographics of hemangiomas found in other parts of the body.

### **Biopsy / Histology / Radiographs**

Oral Hemangioma can be diagnosed clinically. Biopsies are usually avoided due to risk of bleeding but if there is a suspicion of a malignancy then a biopsy may be performed. According to Lyssy, “During the proliferative phase of OH development, the vessels are small, disorganized, and contain tiny lumens, which can be difficult to visualize on microscopic examination. In contrast, the endothelial cells are wide and contain prominent basement membranes composed of alpha-smooth muscle actin.

In the rapid growth stage, the endothelial cells enlarge, their basement membranes become less prominent, and the number of cells stabilizes. As the vessels mature and enter the spontaneous involution phase, the endothelial cells lose their contents and become flattened, with certain cells undergoing apoptosis to be replaced by fat, fibroblasts, and connective tissue.” (Lyssy). This shows the histology of hemangiomas. Radiographically, an oral hemangioma appears as a circular radiolucent area.

### **Differential Diagnosis**

- Vascular malformation
- Vascular ectasia
- Pyogenic granuloma
- Granular cell myoblastoma
- Angiomyolipoma

- Angiosarcoma
- Hemangiosarcoma
- Kaposi's sarcoma
- Lymphangioma

## **Treatment**

Majority of oral hemangiomas do not require treatment because they are benign and may shrink overtime. Hemangiomas that affect speech, swallowing, or airway can be treated in two ways: medically or surgically. Some examples of medications used are: beta-blockers such as propranolol and oral steroids. Surgical approaches include resection and sclerotherapy.

## **Prognosis**

Being that many of the Oral hemangiomas are benign they have an overall favorable prognosis, many patients do not require treatment. However, intraosseous mandibular hemangiomas can be associated with higher morbidity due to the possibility of postprocedural hemorrhage.

## **Professional Relevance**

Although many of the lesions are benign, it is important for us as hygienists to recognize them. I remember the story from Dr. Browns lecture that spoke about a young man in the hospital who presented with a hemangioma and the doctor popped it and he ended up hemorrhaging. A story like this makes you more careful and aware of lesions that people may present with. It would be important to refer these patients to a specialist if their hemangioma would cause excessive bleeding or if it is causing tooth mobility.

## **Citations**

Kang, Ho Jung, et al. "A Clinical Study of Hemangioma in the Soft Tissue of Extremities." *https://doi.org/10.4055/Jkoa.1991.26.2.474*, 8 Nov. 2018, <https://doi.org/10.4055/jkoa.1991.26.2.474>.

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