

## Original Article

## MUCOSAL VENOUS HEMANGIOMAS OF THE ORAL CAVITY – AN ANALYSIS OF 43 CASES AND LITERATURE REVIEW

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### ABSTRACT

**Objectives:** To study the gender predilection, age group and affected site distribution of Mucosal venous hemangiomas of the oral cavity in patients reporting to Department of Oral and Maxillofacial Surgery at Khyber College of Dentistry, Peshawar, Khyber Pakhtunkhwa.

**Methodology:** Forty three patients were included in this descriptive study after a diagnosis was confirmed on the basis of clinical examination and “Blanching” test, carried out at Department of Oral and Maxillofacial Surgery at Khyber College of Dentistry, Peshawar, Khyber Pakhtunkhwa over a period of 3 years and 3 months. All patients with only mucosal hemangiomas were considered and those with intra-osseous, intramuscular, with or without soft tissue extensions of the condition, were excluded from the sample. Pertinent variables such as age, gender and affected site were noted and analyzed using Microsoft Excel 2007.

**Results:** Majority of the patients in this study were male (62.8%) whereas females constituted the remaining 37.2% of the sample. 11-20 years was the most prevalent age group whereas 41-50 years was the least prevalent age group in this study. Amongst the study sample, the tongue was found to be the most affected site, comprising 32.6% of cases and the maxillary gingiva was the least affected site, accounting for only 2.3% of our study sample.

**Conclusion:** Mucosal venous hemangiomas show a marked male predilection in our study sample. Patients falling in 11-20 year age range are affected mostly by the condition and the tongue is the most common affected site in patients from Khyber Pakhtunkhwa.

**Keywords:** Venous Hemangioma, Vascular malformations, Site distribution.

### INTRODUCTION

Hemangiomas are defined as vascular tumors occurring in infancy that undergo a rapid phase of growth and expansion followed by a period of slow and sustained growth during childhood.<sup>1</sup> They are reported to be the most common benign soft tissue tumors of childhood<sup>2,3,4,5</sup> affecting approximately 1 in 22 children.<sup>6</sup> Oral hemangiomas comprise 14% of all human hemangiomas and 50% of venous hemangiomas occur in the head and neck region.<sup>7</sup> Twelve percent of whites are affected by this condition and it is rarely observed in darker skinned individuals.<sup>8</sup> Hemangiomas show a distinct female prevalence and are 3-5 times more common in females than males<sup>9</sup>, especially

arteriovenous hemangiomas have shown a clear female predilection.<sup>10</sup>

Hemangiomas along with vascular malformations comprise the two subclasses of vasoformative tumors according to the classification given by Mulliken and Glowacki<sup>12</sup> in 1982, which is the most accepted classification of vasoformative tumors. The first case of Hemangioma was reported in 1841 as “Bluish excrescence” and “Erectile tissue”.<sup>11</sup> Other earlier names found in literature for these vascular tumors include “angiomas” and vascular “birthmarks”.<sup>13</sup> Over time, the term “Hemangioma” has been used to describe a wide variety of vascular lesions. What may have been called a hemangioma a few decades back may no longer be considered a hemangioma in current times.<sup>8</sup>

Under the Mulliken and Glowacki<sup>12</sup> classification, venous hemangiomas fall in the category of capillary hemangiomas. Venous hemangiomas arise from an arrest in the retiform development stage. This stage

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starts at about 48 days of embryonic development. At this stage any one of arterial, venous and capillary hemangiomas may arise as this development stage is characterized by established arterial, venous and capillary systems.<sup>8</sup>

Two theories are popular amongst researchers which explain the possible etiological mechanisms in play. The first theory points to the presence of estradiol-17 beta-receptors in the cytoplasm of proliferating hemangiomas, the absence of whom was noted in stable or involuting lesions.<sup>14</sup> The second theory favors a distant site of endothelial precursors, possibly bone marrow or placenta, which are carried to a favorable site via the existing vascular system.<sup>15</sup>

Venous hemangiomas are usually not present at birth and are characterized by a pale, well demarcated, flat area which can be made more prominent by stimulating the affected area. Prodromal lesions may appear as a pale halo surrounding an area of telangiectasis or as a very fine telangiectasia similar to the port-wine stain. The lesion typically shows elevation in the 1<sup>st</sup> year of life and grows in the first 3-8 months of infancy which extends to the age of 2 years. This period is followed by a period of stability for the next 6-12 months, by which time involution is noted. Typically, the lesion has a light bluish hue and are soft. They are very compressible and fill up slowly again, thus the characteristic "Blanching" effect is noted. They lack a prominent pulsation and a thrill effect, otherwise a vascular malformation maybe suspected.<sup>8</sup> Historically, most lesions have reportedly involuted by the time the patient is aged 7 years, with 86% of those lesions regressing by the time the patient is aged 5 years.<sup>16,17, 18, 19, 20</sup>

The diagnosis of mucosal lesions is dependent primarily on clinical examination, and imaging studies are rarely required for mucosal lesions.<sup>21</sup> Sometimes computerized tomography and contrast enriched MRI are used for mapping the extent of soft tissue lesions.<sup>22</sup> A biopsy is potentially dangerous and is usually contraindicated.<sup>10</sup> In case a biopsy is performed, histopathology of the lesion in the proliferative phase usually reveals endothelial cell hyperplasia, multilaminated basement membrane, uptake of tritiated thymidine and large numbers of mast cells. Lesions in the involuting phase show a similar picture but in a reduced capacity.<sup>10</sup>

Treatment of venous hemangiomas is broadly divided into medication and surgical therapy. The two primary medical treatments comprise of steroids and

beta blocker therapy<sup>23,24,25</sup> along with interferons and vincristine.<sup>26</sup> Complete surgical excision offers the best possibility of complete cure but depending on the extent of the lesion, significant functional impairment may result. This has led to the development of adjunctive procedures such as sclerosing embolotherapy, lasers, cryosurgery and combined surgical modalities.<sup>10</sup>

However the treatment of venous hemangiomas does not remain without complications. In addition to complications due to the disease itself such as hemorrhage, high-output states, infection, function problems (e.g, airway, vision and hearing), thrombocytopenia, and ulceration, complications arising from treatment include hemorrhage, hematoma, skin necrosis, coagulopathy, malocclusion and dysphagia.<sup>27</sup> The aim of this study is to know the gender predilection, age group and affected site distribution of Venous Hemangiomas in patients reporting to Department of Oral and Maxillofacial Surgery at Khyber College of Dentistry, Peshawar, Khyber Pakhtunkhwa.

## MATERIALS AND METHODS

This descriptive study was carried out at the Department of Oral and Maxillofacial Surgery at Khyber College of Dentistry, Peshawar. The duration of this study was 3 years and 3 months, from July 2008 to October 2011. All patients with only mucosal hemangiomas were considered and those with intra-osseous, intramuscular, with or without peripheral extensions of the condition, were excluded in the sample. All the patients were diagnosed on basis of clinical examination and the "Blanching" test. Pertinent information such as age, gender and affected site was noted. The data was entered and analyzed using Microsoft Excel 2007.

## RESULTS

The study sample comprised 43 patients, out of which 27 were males (62.8%) and 16 were females (37.2%), with a male to female ratio of 1.69:1. The age range of the sample varied from 9 months to 47 years with a mean age of 17.6±11.8 years. The 11-20 year age group was the most prevalent with 17 patients (37.2%) followed by the 1-10 year age group with 11 patients (25.6%). The 41-50 year age group was least represented with 2 patients (4.6%). The details of the age distribution are given in Table 1.

Table I: Distribution of Age group of sample

Age Group	n	%
11-20	17	39.5
1-10	11	25.6
21-30	8	18.6
31-40	5	11.6
41-50	2	4.7
Total	43	100

A breakdown of the site distribution revealed the most affected site to be the tongue with 14 cases (32.6%) followed by floor of mouth with 11 cases (25.6%). The least affected site on our study was the maxillary gingiva with 1 case (2.3%). The details of the distribution by site of venous hemangiomas is given in Table 2.

Table 2: Site distribution of Mucosal venous hemangiomas

Site	n	%
Tongue	14	32.6
Floor of mouth	11	25.6
Cheeks	8	18.6
Labial vestibule	4	9.3
Lips	3	6.9
Mandibular gingiva	2	4.7
Maxillary gingiva	1	2.3
Total	43	100



Fig.1: Large venous haemangioma of the tongue.



Fig.2: One year Post intervention with sclerosing agent.



Fig. 3: Two years Post intervention with sclerosing agent.

**DISCUSSION**

Our study indicates that mucosal venous hemangiomas show a male predilection (male to female ratio of 1.69:1), with the 11-20 years age group showing the highest incidence of this vasoformative tumor and of all mucosal sites, the tongue was the most affected site.

This study encompassed all reported cases of oral venous hemangiomas at the Department of Oral and Maxillofacial Surgery at Khyber College of Dentistry, Peshawar, KPK over a 3 year period. This makes

this study the largest collection of cases of oral venous hemangiomas reported in Pakistani literature, particularly of the mucosal variety of this condition.

The present study showed a definite male predilection for this oral venous hemangioma which is in contrast to current literature. Studies conducted by Marchuk et al<sup>9</sup>, Barret et al<sup>10</sup>, Senthilkumar et al<sup>28</sup>, Corrêa et al<sup>29</sup> and Chiller et al<sup>30</sup> have all found an overwhelming female predilection for oral hemangiomas. Chiller et al<sup>30</sup> found a female to male ratio of 3.7:1 and Senthilkumar et al<sup>28</sup> also found in favor of a female predilection with a female to male ratio of 2:1. The aforementioned studies concentrated predominantly on infant patients whereas our study considered all patients, from infancy to adulthood. A possible reason for this contrasting finding could be the lack of priority given to female healthcare and limited mobility afforded to women outside their homes in rural families as most of the patients reporting to this center belonged to the low socioeconomic group.<sup>31</sup>

Venous hemangiomas are diagnosed primarily at birth, in contrast, majority of the patients reporting to this center were in their second decade of life (39.5%). Studies conducted by Karasu et al<sup>2</sup>, Maaita et al<sup>3</sup>, Sato et al<sup>4</sup> and Tanaka et al<sup>5</sup> found hemangioma's to be the most prevalent in childhood and not in teenage nor adult patients. A look at the study conducted by Senthilkumar et al<sup>28</sup> reveals the mean age of their study was 0.8 years whereas the mean age of our study is 17.6 years. The mean age of the study conducted by Trobs et al<sup>32</sup> was 2.3 years, which does not support our study findings. This can be attributed to a lack of education and awareness of parents and patients who probably do not perform regular dental checkups.<sup>33</sup> Part of the blame can also be attributed to general physicians and dentists who either do not check the oral cavity for such a common tumor as part of a routine medical and dental checkup or referred the patients to tertiary care hospitals which were not routinely accessible to most of the patients either due to economic or social reasons.<sup>31</sup>

This study revealed that amongst all mucosal tumors, the tongue was the most affected site which is in accordance with current literature. Trobs et al<sup>32</sup> found the lips to be the most common site with 22% involvement, followed by the tongue with 21%, cheeks in with 19% and floor of mouth with 13% of cases. Corrêa et al<sup>29</sup> found in favor of our study findings with 31.8% of their sample comprised lesions on the

tongue, followed by lower lip 22.7% and upper lip with 9.1%. Interestingly they reported no lesions affecting the floor of the mouth which was the 2<sup>nd</sup> most affected site in our study.

## CONCLUSION

It can be concluded that

- 1- Oral venous hemangiomas show a definite male predilection
- 2- The age group of 11-20 years shows the highest incidence of Oral venous hemangiomas
- 3- The tongue is the most commonly affected site by venous hemangiomas of all oral soft tissues.

## RECOMMENDATIONS

After studying current literature and noting the conflicting results of our study, it is stressed that infants and children upto 3 years are routinely checked for signs of venous hemangiomas as they comprise the most common tumor of childhood. Furthermore, medical professionals and general dentists need to include a detailed examination of the oral cavity for tumors that are common to specific age groups for timely intervention.

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