

# Cryosurgery of A Huge Hemangioma of Tongue: A Case Report

Hakan Alpay Karasu, Aysegul M. Tuzuner Oncul, Lokman Onur Uyanik

## ABSTRACT

*Hemangiomas are frequently seen benign tumors which based on vascular tissues. These lesions are mainly identified in to two groups which are named as capillary and cavernous hemangiomas due to vascularization of the lesions. Capillary hemangiomas consist of small capillary vessels which show lobules formation. Cavernous hemangiomas consist of large dilated vessels and they can reach to large sizes. Several treatment modalities including sclerotherapy, embolisation, laser surgery and cryosurgery have been described for hemangiomas. In this significant case, the cryosurgery treatment of a 16 years old male patient who was suffering from the huge hemangioma in the right side of his tongue is presented.*

## KEYWORDS

*Hemangioma, Cryosurgery*

Contact Author

Dr. Aysegul M. Tuzuner Oncul  
E-mail : ayltuzuner@yahoo.com

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## INTRODUCTION

**H**emangiomas are benign tumors of vascular tissue which are most likely to be seen at the head and neck region. They are the most common tumors of the childhood. They show higher prevalence in women. Most of these lesions are described hamartomas instead of tumors. Vast majority of hemangiomas are known to be regressive(1).

Hemangiomas are classified as capillary and cavernous on the basis of the vascularization system. (1). Capillary hemangiomas consist of small capillary bodies that organize lobularly. Cavernous hemangiomas consist of wide and dilated vessels and can reach to large sizes. Hemangiomas can be encountered intraorally; on lips, tongue, anterior gingival and buccal mucosa. Especially the lesions on the cheeks and tongue can be traumatized by chewing and bleeding can occur. Also, some patients with hemangioma on their tongues have complained about burning and pain (1-4).

It is known that deep hemangiomas could be seen as blue-purple lesions during intraoral examination. For the diagnosis of cavernous hemangiomas, bidigital palpation of the region and detection of disappearance of the blood due to finger pressure and after removal of finger pressure observation of revascularization are important signs. Furthermore, if the lesion has an arterial origin, pulse can be obtained by finger pressure(1,2).

Age and general condition of the patient has great importance as well as the size and characteristics of the lesion in the treatment of hemangiomas. Small lesions can be surgically excised while larger ones require specific surgical interventions. These treatment methods are sclerotherapy, embolisation, laser surgery and cryosurgery (1-5).

Cryosurgery is a very effective method for the treatment of intraoral cavernous hemangiomas. It can be applied under basic local anesthesia. Freezing should be repeated twice for each area to ensure adequate effect. The ice ball should extend a little beyond the limits of the lesion so that about three-quarter of the diameter of the observed circumference of the frozen tissue will be at a cell lethal temperature of  $-15^{\circ}\text{C}$  of normal tissue. Sloughing of some of the central tissue usually takes places at about one week postoperatively and healing may be expected with 3-6 weeks.

## CASE REPORT

Sixteen year old male patient who was suffering from a huge hemangioma on his tongue presented to our Oral and Maxillofacial Surgery Department of Dental Faculty of Ankara University. In clinical examination wide, bluish purple lesion was detected on the right lateral side of the patients tongue (Figure 1). The signs of revascularization after finger pressure was determined and no pulsations were obtained from the lesion and the lesion were diagnosed with hemangioma.



Figure 1. Preoperative view of the hemangioma



**Figure 2. Application of liquid nitrogen via the utilization of the large contact tip to the lesion**

The treatment selection for this specific case was cryosurgery of the lesion for high tendency of bleeding. Following the routine surgical protocol, liquid nitrogen via large contact tip was applied to the entire lesion for 60 seconds (Figure 2). Following this process the area was washed with NaCl 0.9% and the patient was prescribed with analgesic, anti-inflammatory agents and mouth wash containing antiseptics. Necrotic and sloughing area were observed in the postoperative first week (Figure 3) and within the first month the lesion was successfully removed and completely healed (Figure 4).



**Figure 3. Necrotic and sloughing area at the postoperative first week**

## DISCUSSION

The diagnosis and the classification of the vascular malformations have a great importance on the treatment plan of the lesions. Mulliken and Glowacki proposed a terminology for classifying these lesions that is based on clinical and microscopic features (6). This system broadly classifies vascular lesions into hemangiomas and vascular malformations. The hemangioma is the true vascular tumor that results from a neoplastic overgrowth of normal vascular tissue. The hemangioma grows by endothelial proliferation. In distinction to hemangiomas, vascular malformations results from abnormal vascular or lymphatic vessel morphogenesis, not as the result of abnormal endothelial growth. Hemangiomas are usually present at birth and can be diagnosed by 1 year, whereas vascular malformations are present at birth but often not diagnosed until second decade of life. Hemangiomas show rapid growth until 6-8 months and involute by 5-9 year. Vascular malformations show slow growth throughout life with increase in response to infection, trauma, or hormonal fluctuation and they do not involute. Osseous involvement of the hemangiomas is rare but 35% of the vascular malformations show osseous involvement (7).

A wide variety of methods are utilized for the treatment of intraoral hemangiomas. Embolisation technique



**Figure 4. The view of the complete healing was observed with minimal scar formation one month after cryosurgery.**

which is one of them has been utilized since early nineties. However, embolisation technique has two major disadvantages. One of these disadvantages is the risk of embolisation material reaching cranial cavity via external and internal carotid arteries and the need for an experienced radiologist in order to perform this procedure. The other disadvantage is the temporary blockage of flow (1). It would be proper to utilize this method prior to the surgical excision of large hemangiomas in order to reduce to risk of bleeding (2-5).

Another method for the treatment of hemangiomas is sclerotherapy. In this method, a sclerotic agent is injected into or peripheral to the vein that the hemangioma originates from. This method is successfully utilized in the treatment of extra oral lesions. However, pressured bandage can not be applied to the region after the injection of sclerotic agent in intraoral lesions. Thus, sclerotherapy is recommended to be applied together with other treatment methods (1).

Subzero temperatures can cause so-called 'frosbite' whilst temperatures above the coagulation point of proteins results in 'burns'. Thermal surgery employs these effects in carefully controlled manner: the use of temperatures below freezing point constituting cryosurgery while heating effects are obtained by the use of lasers normally functioning in the infrared range of wavelengths.

The results of the cryosurgery can be explained as a cold-induced coagulative necrosis. Cryodestruction of a normal or benign neoplastic tissue normally requires the attainment of a temperature of at least  $-15^{\circ}\text{C}$  (the temperature at which intracellular ice forms) while total ablation of malignant tumor tissue calls for some degree of overkill at level of  $-50^{\circ}\text{C}$  (1).

For the management of oral benign, premalignant and malignant lesions liquid nitrogen is used as a freezing agent and delivered by either probes or sprays (2-4). In this case, probes are preferred in order to have limited effect on the lesion.

In cryosurgery tissue regeneration is remarkably better than the other surgical techniques. When the body spontaneously separates the coagulated slough there is a powerful stimulus to cellular division, hyperplasia and apparent hypertrophy; this may be associated with concomitant cytokine release (1).

Laser surgery is another effective method used for the treatment of intraoral hemangiomas (5). But, it has several disadvantages when compared with cryosurgery. Laser surgery is a much more complex process compared with cryosurgery. Laser surgery is a much more complex process compared to cryosurgery and requires general anesthesia. Nerve damage is less in cryosurgery and regeneration is quicker. Postoperative scar formation is less in cryosurgery.

Laser surgery application can be hazardous around salivary gland ducts, which should be taken into consideration. Laser surgery costs much more expensive compared to cryosurgery. However in laser surgery, postoperative edema is less and the procedure does not require to be repeated. Additionally, laser surgery is a faster and more dramatic technique

## CONCLUSION

A variety of methods of treatment are thus available for intraoral hemangiomas. The majority of these lesions can be regarded as capillary-cavernous hemangiomas. In this case, cryosurgery was preferred for the treatment of the cavernous hemangioma since it has multiple advantages like being an easy, cheap, successful method which can be done under local anesthesia.

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## THE AUTHOR

### Prof. Hakan Alpay KARASU

Associate Professor  
Dept. of Oral and Maxillofacial Surgery  
Faculty of Dentistry, Ankara University  
Ankara, Turkey

### Dr. Aysegul M. TUZUNER ONCUL

Junior staff  
Dept. of Oral and Maxillofacial Surgery  
Faculty of Dentistry, Ankara University  
Ankara, Turkey

### Dr. Lokman Onur UYANIK

Junior staff  
Dept. of Oral and Maxillofacial Surgery  
Faculty of Dentistry,  
Near East University  
Lefkose, Cyprus