



## Management of Hemangioma Buccal Mucosa by Sclerotherapy - A Case Report

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### Abstract

*Haemangiomas are the most common benign soft tissue tumours of the oral cavity. It often presents at birth or soon after and appears as a soft and vascular swelling in the lip, tongue, or buccal mucosa. It can be managed medically or surgically. This article reports a case of hemangioma of the buccal mucosa in a 13-year-old boy effectively managed by sclerotherapy.*

### Introduction

Hemangiomas are the most common benign soft tissue tumor of infancy and childhood, occurring in 12% of all infants, and are found in greater frequency in girls, whites, premature infants, and twins and are usually born to mothers of higher

maternal age<sup>(1)</sup>. This tumor develops due to endothelial cell proliferation. Oral hemangiomas are relatively rare and most frequently involve the lips, tongue, buccal mucosa, and palate. These have also been noted in the mandible and maxilla (central hemangiomas) and within the masseter

and other muscles of mastication (intramuscular hemangiomas).<sup>(2)</sup>

In 1982 Mulliken and Glowacki introduced the first biological classification of vascular anomalies into two groups, hemangiomas and vascular malformations, based on their natural history, cellular turnover, and histology. Infantile hemangiomas indicate endothelial proliferation and proceed through a two-stage process of growth and regression.<sup>(3)</sup>

Hemangiomas within the oral mucosa can be diagnosed clinically. If treatment is desired, a colour-doppler ultrasound is often the first-line imaging modality as it can readily provide morphological and vascular information.<sup>(1,4)</sup>

Most oral hemangiomas will not require treatment due to their benign presentation and a high rate of complete involution over time. Management of oral hemangioma can be medical or surgical. Sclerotherapy is one of the most effective methods for the treatment of oral hemangioma<sup>(2,4)</sup>. Here we report a case of hemangioma buccal mucosa managed by serial injection of sclerosant sodium tetradecyl sulphate.

### Case Report

A 13-year-old boy was reported to the dental outpatient department for extraction of a retained molar tooth. The patient was asymptomatic and unaware of growth on the right buccal mucosa with no history of bleeding, pain ulceration, or burning sensation. On extra oral examination, there was no appreciable facial asymmetry evident on profile or frontal view. No abnormality was detected with the cervical lymph node or neck region.

On intraoral examination, a solitary localized circumscribed well-defined growth measuring approximately 2\*2 cm on the posterior right buccal mucosa along the occlusal plane in relation to 46 47, which was dark red to purplish with corrugated superficial mucosa. There was no visible pulsation and the surrounding mucosa was within normal limits. [figure 1]



**Figure 1:** Initial presentation of lesion

On palpation, the growth was non tender soft in consistency, partially reducible and blanching under pressure. The swelling was not fixed to underlying structures and no pulsations were palpable. Routine blood examination was advised and was found to be within normal limits.

The patient was advised to take an ultrasound buccal mucosa revealed a well-defined echogenic mass lesion with serpiginous vessels measuring 23\*12mm along the right buccal mucosa. Plane of swelling was a submucosal, lesion partially compressible with no deeper extension suggestive of hemangioma.

### Treatment

The patient was given an intralesional injection of 3% 1 ml of a sclerosing agent (sodium tetradecyl sulphate) once a week for 5 weeks. An insulin syringe was used. After every visit patient was given analgesics for pain. For the last injection ulceration and sloughing were noted. For that patient was given antibiotics and anti-inflammatory drugs. After 5 weeks of follow-up, the lesion was fully healed without any other complications. [Figure:2,3,4]



**Figure 2:** Lesion after first injection



**Figure 3:** Ulceration during injection



**Figure 4:** Completely healed lesion

### Discussion

Vascular anomalies are lesions arising from the arterial and or venous and/or lymphatic circulation.<sup>(5)</sup> Benign vascular tumours were classified in various ways. According to the type of fluid they contained as hemangioma (blood-containing lesion) and lymphangioma (lymph-containing lesion). Another is according to the size of the vascular channels as capillary (small diameter vascular channels) and cavernous (large diameter vascular channels).<sup>(4)</sup> Mulliken and Glowacki described a biological classification based on endothelial cell characteristics that differentiate vascular lesions with endothelial cell proliferation (hemangioma) from lesions with structural anomalies (vascular malformations).<sup>(1,3)</sup> The ISSVA (International Society for the Study of Vascular Anomalies) modified it in their continuing workshops, differentiating vascular tumours from vascular malformations based on their clinical appearance, radiological features, pathological features, and biological behaviour. Hemangioma is considered a benign vascular tumour.<sup>(6)</sup>

Pathogenesis of hemangioma is currently explained by two theories. According to the first theory, endothelial cells are formed from deranged placental tissue present in foetal soft tissues during gestation. The second concept is that stem

cells and endothelial progenitor cells which give rise to hemangiomas, are found in the circulation of patients with hemangiomas. Abnormal levels of matrix metalloproteinases (MMP9) and proangiogenic factors (VEGF, b-FGF, and TGF-beta 1) are also involved in the pathogenesis of hemangioma. Genetic errors involving growth factor receptors are also known to be responsible for the development of these lesions<sup>(7)</sup>.

According to George et al, infantile haemangioma develops between 2-8 weeks of life. It has got a female prevalence (5:1), Grows rapidly for approximately 6-12 months then undergoes slow involution and involute by 5-9 years with no associated thrill or bruit<sup>(1)</sup>. Hemangioma may be located superficially or deeply. Most superficial oral mucosal lesions are manifested as a well-circumscribed, firm, isolated, and raised dark red lesion (macula, papule, or nodule –depending on the congestion degree and deepness into the tissue) that is rubbery on palpation. Vascular lesions tend to blanch in response to the application of a firm pressure by a flat transparent instrument – (glass slide) for 1 or 2 minutes. When the instrument is removed, the lesion remains pale for a few seconds; then, it slowly starts refilling again from the feeder vessels.<sup>(9)</sup> Diascopy will be useful to know whether the colour of a lesion is due to blood present in the vessels in hemangioma or to extravasated blood present in the tissues: the former case will blanch on pressure and the latter will not. <sup>(10)</sup>. Oral hemangiomas are most common in the regions of the lips, tongue, and buccal mucosa, presenting as red, purple, or violet macules or nodules of variable size, which may be well-delineated or diffuse and are relatively depressible<sup>(8)</sup>. In the presented case the lesion was seen on the buccal mucosa, dark red to purplish with corrugated superficial mucosa, partially reducible and blanching under pressure.

Most hemangiomas are diagnosed by history and physical examination. Various imaging modalities for hemangioma are Ultrasound, Doppler

ultrasound, MRI, CT, Angiography, and digital subtraction radiography. Ultrasound is the least invasive modality of imaging available for assessment of vascular anomalies. It is used as a baseline investigation for superficial head and neck vascular lesions<sup>(11,12)</sup>. In the present case ultrasound has confirmed the diagnosis as hemangioma.

Most of the hemangiomas have been managed with close observation. Nearly 40% of children require further intervention because of bleeding, ulceration, visual axis obstruction, airway obstruction, high-output cardiac failure, or risk for permanent disfigurement<sup>(11)</sup>.

Management of hemangioma can be either medical or surgical. Medical management includes Corticosteroids (systemic or intralesional), interferon, and vincristine, bleomycin beta adrenergic blockers such as oral propranolol, and various sclerosing agents.<sup>(9,11)</sup>

There are many sclerosing agents such as polidocanol, sodium morrhuate, sodium tetradecyl sulphate, OK432 and bleomycin, absolute ethanol, and boiling contrast media.<sup>(14)</sup> Sodium tetradecyl sulphate is the sclerosing agent which has been used for years in the treatment of varicose veins, hemorrhoids, and hemangioma<sup>(16)</sup>. Sclerosing agents can cause tissue irritation and thrombosis which leads to local inflammation and tissue necrosis.<sup>(13)</sup>

Christensen reported four cases of oral hemangiomas out of which three were managed by sclerosant-sodium morrhuate injection. All the lesions completely regressed without any recurrence.<sup>(17)</sup>

In 1979 Minkow et al. studied the effect of local injection of sclerosing agent sodium tetradecyl sulphate in 24 cases of hemangioma of various sizes in oral cavity and lips. He used a technique of intralesional injection of 0.1–0.5 ml of 3% sodium tetradecyl sulphate at the interval of 2–4 weeks. All lesions were healed without any side effects or scarring.<sup>(16)</sup>

Govrin-Yehudain conducted an experimental and clinical study for the treatment of hemangioma by sclerosing agent -sodium tetradecyl sulphate. In this study, all patients were treated with injections of sclerosing agents. All the patients were shown a better result.<sup>(13)</sup>

Agarwal in 2011 published a study of 20 cases of oral hemangioma. All the cases were diagnosed clinically and were treated with sodium tetradecyl sulphate. 3% sodium tetradecyl sulphate was injected intralesional at multiple sites. Injection was repeated after 2 weeks. Up to 10 injections were given in larger lesions. All the case lesions regressed with minimal complication.<sup>(15)</sup>

Gupta et al. in 2021 reported a case of cavernous hemangioma on the lateral border of the tongue managed with 1% sodium tetradecyl sulphate with successful remission of the lesion.<sup>(18)</sup>

In our case, we managed hemangioma buccal mucosa in a 13-year-old boy with weekly injections of sodium tetradecyl sulphate once a week with a total of 5 injections, and the lesion was fully healed without any scarring.

### Conclusion

Hemangiomas are benign vascular tumours of endothelial origin. It can occur anywhere in the body. In the oral cavity, it can be seen on the buccal mucosa tongue lips, or palate. Most of the cases can be diagnosed clinically and ultrasonography is the least invasive and cost-effective imaging modality. Hemangioma can be treated by either medication or surgery. Sclerotherapy is one of the most effective treatment modalities in the management of hemangioma. Here we reported a case of hemangioma of buccal mucosa in a 13-year-old boy diagnosed clinically and confirmed by ultrasound imaging. This case was treated with 3% 1ml sodium tetradecyl sulphate weekly injections for 5 weeks. The lesion was completely healed without any scarring. So, sclerotherapy is an effective treatment modality for the

management of hemangiomas of the oral and maxillofacial region.

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