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Case Report

Polidocanal sclerotherapy for lingual hemangioma- A case report

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ABSTRACT

Hemangiomas are benign growths characterized by abnormal blood vessel proliferation, frequently found in the head and neck area, including the tongue, cheek mucosa, and lips. They are among the most common neoplasms in infancy, with prevalence estimated at 1-3% in neonates and 10% in one-year-old children. Females and Caucasians are more commonly affected, with 60% of cases occurring in the head and neck region. Typically, hemangiomas present as single lesions in 80% of cases and are thought to be developmental rather than neoplastic. Despite their benign nature, oral hemangiomas pose clinical challenges in dentistry due to potential complications such as bleeding and ulceration. Treatment approaches vary and should be tailored to individual cases for the best outcomes. Sclerotherapy is highlighted as a non-invasive and cost-effective method that swiftly achieves satisfactory results. This case study illustrates successful treatment of a tongue hemangioma using sodium tetradecyl sulfate, a sclerosing agent, which resulted in complete resolution of the lesion, underscoring sclerotherapy's efficacy as a prompt and nonsurgical treatment option.

1. Introduction

Hemangioma is a benign tumor arising from endothelial cells, characterized by abnormal blood vessel proliferation. It typically exhibits rapid growth followed by a phase of gradual regression leading to complete resolution.[1,2] The exact cause of hemangiomas is uncertain, but they can arise congenitally or due to trauma. While often asymptomatic, they may present with symptoms such as pain, bleeding, ulceration, infections, and significant facial asymmetry.[3]

Most commonly found in the head and neck area, hemangiomas affect regions like the lips, tongue, and cheek mucosa in the maxillofacial region.[1] Clinically, they appear as varying shades of red to purple stains or nodules, depending on their depth and location.[4] They can be classified as superficial, deep, or mixed, based on their dermal involvement.[5]

Diagnosis primarily relies on clinical history and examination, often supplemented by semio-technical maneuvers like diascopy, which avoids the risks associated with incisional biopsy.[6] Definitive diagnosis can be done by MRI.

Treatment goals, according to the American Academy of Dermatology, include preventing complications, deformities, and psychological distress while minimizing aggressive procedures and associated risks.[7] Therapeutic strategies for hemangiomas vary depending on their type and location, encompassing radiotherapy, electrocoagulation, laser therapy, cryotherapy, embolization, surgery, sclerotherapy, and interferon administration.[3] Sclerotherapy stands out as a conservative, minimally invasive, and cost-effective technique capable of

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achieving favorable clinical and aesthetic outcomes within a short timeframe. This study focuses on a male patient with a lingual hemangioma treated successfully using sodium tetradecyl sulfate sclerosing solution, resulting in complete remission of the lesion.[8,9]

2. Case Report

A 57-year-old male patient reported to Department of Oral and Maxillofacial Surgery, NIMS Dental College and Hospital, Jaipur with a swelling in the ventral surface of anterior one third tongue. He noticed it 9 months back which was gradually increasing. He is a chronic tobacco chewer and not using any denture. The swelling was not associated with features of pain, fever, difficulty in the speech and swallowing. The past medical, dental and family histories were not significant and the vitals were within normal limit.

During intra-oral examination, a solitary elliptical swelling measuring approximately 2cm × 4 cm was observed. It had well-defined borders and a smooth, granular surface, appearing dark-red to purplish-black in color. (Figure 1)

Figure 1: Lesion on ventral surface of tongue

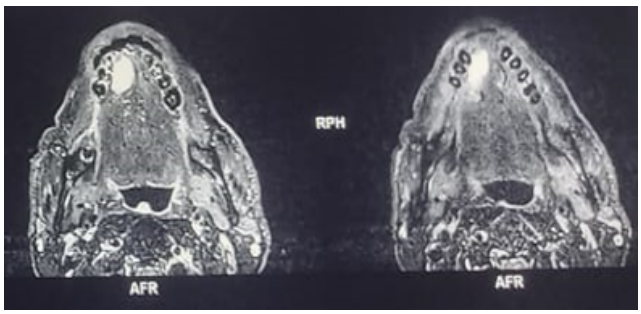

Figure 2: T2- weighted MRI appearance of the VM depicted. the malformation appears hyperintense.

Figure 3: Inter-op marking of lesion

Figure 4: Injecting at periphery of lesion

Figure 5: Injecting at centre of lesion

Figure 6: Follow up after 15 days

Figure 7: Follow up after 30 days

The surrounding area appeared normal. The lesion had been evolving for approximately 9 years following an accidental bite. The patient had previously sought medical advice without resolution of the issue. On palpation, the swelling was found to be soft, non-mobile, non-tender, and afebrile. It did not blanch on compression but bled easily with slight provocation.

Since there was blood collection within the lesion and the MRI report confirmed the diagnosis of intraoral venous malformation suggestive of hemangioma (Figure 2). To address both aesthetic and functional concerns and reduce the risk of bleeding, sclerotherapy was performed using a 1% Polidocanol sclerosing agent. This agent initially irritates the endothelial lining of the vein, triggering a sterile inflammatory reaction that ultimately results in fibrosis of the vascular wall.

A specialized technique was utilized for the procedure. Local anesthesia was given using 2% lignocaine hydrochloride with adrenaline. The entire lesion was initially marked with a marker in an elliptical shape, which was subsequently divided into four quadrants (Figure 3).

Using an insulin syringe, 2 ml of 1% polidocanol was injected into the periphery and deeper layers of the lesion along each quadrant (Figures 4 and 5). Aspiration was performed beforehand to minimize needle punctures and potential bleeding. The patient reported no discomfort during the procedure.

The patient was recalled for a follow-up after 15 days, during which we observed slight to moderate shrinkage of the lesion in terms of size. (Figure 6). At this time, 0.05-0.1 ml of 1% Polidocanol was again injected into the center of the lesion. During the third visit, there was almost complete regression of the lesion. (Figure 7). Subsequent regular visits showed no further changes in the lesion's dimensions.

3. Discussion

Hemangiomas are vascular tumors that typically appear during infancy, characterized by a rapid growth phase followed by slower, sustained growth throughout childhood. The term originates from the Greek words "hema" for blood, "angeio" for vessel, and "oma" for tumor.[10] The etiology of hemangiomas remains uncertain - potentially arising congenitally or from trauma. While often asymptomatic, they can also present with symptoms such as pain, bleeding, ulceration, secondary infections, and significant facial asymmetry.[3] The head and neck region is densely vascularized, which can predispose it to various types of vascular lesions. In 1982, Mulliken and Glowacki classified these lesions based on their clinical behavior and endothelial cell characteristics into vascular malformations and hemangiomas.[11] Hemangiomas typically manifest as soft, flat or raised growths that can be sessile or pedunculated, and they are generally painless. Their surface may appear smooth or irregularly shaped, often lacking clear boundaries. The color ranges from deep red to purple, and the lesion turns pale when pressure is applied.[12] Intraoral lingual hemangiomas causes cosmetic deformity, functional problems with speaking, deglutition, mastication and recurrent haemorrhage.[13] Several studies have proposed various explanations for the etiology of hemangiomas. According to North et al., the placental theory of hemangioma proposes that its development is influenced by various histological and molecular markers such as GLUT1, Lewis Y Antigen, Merosin, CCR6, CD15, IDO, FC, and gamma Receptor II. Recent research suggests that hemangioma growth may be linked to somatic mutations in genes involved in

angiogenesis. Specifically, growth factors like VEGF, b-TGF, and IGF play crucial roles in angiogenesis during the proliferation stages of hemangiomas.[14] Estrogen signaling is implicated in the proliferation of hemangiomas.[15] Various treatment methods have been utilized to manage the growth and promote regression of hemangiomas, chosen based on their size and location.[1] Smaller and peripheral hemangiomas can be treated with options such as sclerotherapy, conventional surgical excision, laser treatment, radiotherapy, electrocoagulation, and cryotherapy.[16,17] For larger or intraosseous lesions situated in aesthetically sensitive areas, treatment typically involves embolization or complete obliteration of the lesion and surrounding vessels. This approach aims to induce regression of the lesion, preparing for potential subsequent surgical intervention.[18,19]

Sclerotherapy is considered a safe method that can achieve partial or complete regression of the lesion. This treatment can facilitate easier resection during subsequent surgical interventions, if needed. In certain cases, sclerotherapy alone may be sufficient as a definitive treatment, resulting in total regression of the lesion. Polidocanol is chosen among sclerotherapy agents for its favorable safety profile with fewer side effects compared to others. Additionally, it demonstrates therapeutic efficacy in treating venous malformations.[20] Polidocanol, also known as Aethoxysklerol, is a detergent solution that induces a localized inflammatory response within the hemangiomatous area. This process initiates thrombosis and subsequent fibrosis of the endothelial cavities, leading to regression of the lesion.[21] Sclerotherapy is contraindicated in cases of uncontrolled diabetes and in areas affected by secondary infection.[22–24] The dosage of the medication should be adjusted according to the size of the lesion and administered every seven days, with each session not exceeding 2 ml.[3] The advantages of using sclerosants include painlessness during intravascular injection, high efficacy and safety, and a very low incidence of allergic reactions. Additionally, the drug does not cause hemolysis directly, thereby potentially reducing the risk of hyperpigmentation. According to Bnayahu Minkow et al., a two-week interval between injections allows for the recovery of surrounding tissues from vascular damage and helps mitigate inflammatory reactions.[25] In our case, the lesion initially decreased in size after the first injection but did not completely resolve. Therefore, the procedure was repeated after a two-week interval, consistent with recommendations in the literature.

4. Conclusion

Sclerotherapy is widely accepted for treating oral hemangiomas, offering an effective, straightforward, non-invasive, and cost-effective therapeutic option with reduced risks of hemorrhage and surgical trauma. Dental surgeons should evaluate their qualifications for managing hemangioma treatment and be knowledgeable about the appropriate medications used in sclerotherapy. They must be equipped to handle both healthy patients and those with physiological conditions to prevent medical emergencies during the procedure. In case of emergencies, professionals should be prepared to provide immediate assistance.

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None

6. Conflict of Interest

None.

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