

Hemangioma of the Tongue in a 65-year-old Female: A Case Report

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ABSTRACT

This case report highlighted the clinical presentation, diagnostic evaluation, and successful management of a hemangioma in a 65-year-old female presenting with a progressively enlarging lesion on the tongue. Diagnosis was achieved through advanced non-invasive imaging modalities, including ultrasound, magnetic resonance imaging (MRI), and color Doppler imaging. Treatment with intralesional Bleomycin sclerotherapy resulted in significant lesion regression, restoration of functional abilities, and excellent cosmetic outcomes. This case highlighted the importance of imaging-guided diagnostics and minimally invasive therapies for managing vascular anomalies in anatomically sensitive and functionally significant regions.

Key words: hemangioma, tongue lesion, vascular anomaly, Bleomycin sclerotherapy, oral vascular lesion.

INTRODUCTION

Hemangiomas are benign vascular tumors arising from abnormal endothelial cell proliferation. They are characterized by the formation of disorganized vascular channels, which can exhibit varying growth patterns depending on their age of onset¹. While hemangiomas are common in infancy, adult-onset hemangiomas are rare and often persist without spontaneous regression, making active intervention necessary².

Oral hemangiomas, particularly those located on the tongue, are associated with significant functional impairments and aesthetic concerns due to the critical role of the tongue in speech, mastication, and swallowing³. Historically, surgical excision is the mainstay of treatment for oral vascular lesions, but the risks of hemorrhage, scarring, and functional deficits prompt a shift towards minimally invasive approaches⁴. The evolution of advanced imaging modalities and the integration of sclerotherapy, particularly with agents such as Bleomycin, significantly enhance the therapeutic paradigm for vascular anomalies, offering a superior safety profile and improved clinical efficacy⁵.

This case report presents a rare instance of a tongue hemangioma in a 65-year-old female, emphasizing the role of imaging-guided diagnostics and the efficacy of Bleomycin sclerotherapy in achieving excellent clinical outcomes.

CASE REPORT

Patient History:

A 65-year-old female presented with a progressively enlarging lesion on her tongue over a three-month period. The lesion was associated with localized pain, difficulty swallowing, and impaired speech, significantly affecting her quality

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of life. The patient had no systemic illnesses or history of trauma. She recalled a traditional camphor burn ritual on her tongue 30 years ago, but clinical and imaging findings established no relationship between this historical event and the current lesion.

Clinical Examination:

On clinical examination, a well-circumscribed, nodular lesion was identified on the right dorsal and lateral surfaces of the tongue, extending into the anterior one-third. It measured 4 × 2 × 2 cm, exhibited a reddish-blue hue, and blanched under pressure (positive diascopy), indicating a vascular origin. The surrounding mucosa was intact, and no cervical lymphadenopathy or abnormalities in adjacent tissues were observed.

Investigations:

Comprehensive diagnostic imaging was performed to confirm the diagnosis and assess the lesion extent:

1. Ultrasound:

The lesion appeared as a hypoechoic, lobulated structure measuring $3.6 \times 3.7 \times 1.8$ cm. It was confined to the tongue, with no evidence of deeper tissue invasion or posterior extension.

2. MRI:

T2-weighted imaging demonstrated a hyperintense lesion with intralesional phleboliths, characteristic of hemangiomas. The lesion boundaries were clearly delineated, and no malignancy was observed.

3. Color Doppler Imaging:

Active central vascular flow was identified, confirming the vascular origin of the lesion and ruling out non-vascular masses such as pyogenic granulomas or fibromas.

The imaging findings provided conclusive evidence for the diagnosis of a hemangioma, effectively ruling out other potential conditions, as outlined in Table 1 (Differential Diagnosis).

Management:

The lesion was managed with intralesional Bleomycin sclerotherapy, a minimally invasive therapeutic approach. Weekly injections of Bleomycin (1 mg/mL) were administered under ultrasound guidance for six weeks. Ultrasound ensured precise delivery of the sclerosing agent into the lesion, reducing the risk of complications and preserving surrounding tissues.

Outcomes:

Lesion Regression: By the end of treatment, the lesion showed significant reduction in size, with near-complete resolution.

Functional Restoration: The patient reported substantial improvement in swallowing and speech, regaining normal tongue mobility.

Aesthetic Results: No visible scarring or deformity was observed, preserving the tongue's natural appearance.

The selection of Bleomycin therapy over surgical or alternative sclerosing agents was supported by its proven efficacy and safety profile, as detailed in Table 2 (Treatment Modalities).

TABLES:

The differential diagnosis included (Table 1).

Table 1: Differential diagnosis of the red lesion of the tongue based on clinical presentation.

Condition	Characteristics
Vascular Malformations	Congenital, non-regressive anomalies, abnormal vascular structures, stable/asymptomatic masses.
Hemangiomas	Postnatal growth, raised, red lesion may be Painful/ulcerated.
Vascular Ectasias	Diffuse, non-painful dilations of blood vessels; superficial, often asymptomatic.

Pyogenic Granulomas	Reactive lesion as small, red, and ulcerated lesions with tendency to bleed.
Granular Cell Tumor	Firm, non-tender masses.
Angiomyolipomas	Well-circumscribed, non-tender, slow-growing masses distinct from vascular hemangiomas.
Angiosarcomas	Aggressive growth, rapid enlargement, and ulceration.
Hemangiosarcomas	Painful, rapidly enlarging masses with ulceration; distinct malignant growth.
Kaposi's Sarcomas	Multifocal, purplish-red lesions.
Lymphangiomas	Soft, spongy, and translucent, distinct from hemangioma.

Treatment modalities are listed below (Table 2) :

Table 2: Treatment modalities considered for the management of the tongue lesion.

Treatment	Indications	Advantages	Limitations
Corticosteroids	Small to medium-sized lesions	Non-invasive	Potential systemic side effects, secondary infection
Beta Blockers	Rapidly growing in infantile hemangiomas	High efficacy, favorable safety profile	Careful monitoring required
Laser-Therapy	Superficial, small lesions.	Minimally invasive,	Multiple sessions, scarring
Cryo-therapy	Small, superficial lesions.	Minimally invasive	Risk of tissue damage, scarring
Sclerotherapy	Large, deep lesions, particularly in challenging anatomical areas.	Minimally invasive	Risk of local tissue damage, multiple sessions
Surgical Excision	Well-circumscribed, symptomatic lesions	Definitive treatment, immediate results	Invasive
Embolization	Large, deep-seated lesions in critical areas	Reducing blood supply	Invasive
Radiation Therapy	Large aggressive/recurrent lesions	Deep/inaccessible lesions	Radiation-induced malignancies,

DISCUSSION

Pathophysiology of Hemangiomas:

Hemangiomas are vascular tumors caused by abnormal proliferation of endothelial cells, resulting in the formation of disorganized vascular channels. The development of hemangiomas is driven by the overexpression of pro-angiogenic factors such as vascular endothelial growth factor (VEGF) and basic fibroblast growth factor (bFGF), which stimulate endothelial cell growth, angiogenesis, and vascular remodeling. These factors are often dysregulated, leading to uncontrolled vascular proliferation⁶.

In adult hemangiomas, unlike their infantile counterparts, the absence of a spontaneous involution phase results in persistent lesions that gradually expand. This case presents features consistent with a cavernous hemangioma, a type commonly seen in adults, characterized by large, dilated vascular spaces lined by flattened endothelial cells. These spaces can compress surrounding tissues and impair normal function. The lesion's location on the tongue, a dynamic and highly vascular organ, poses additional risks due to its critical roles in speech, swal-

lowing, and mastication. The persistent growth of the lesion and its associated functional impairments highlight the need for early diagnosis and timely intervention to prevent complications⁷.

Clinical Presentation:

The clinical presentation of hemangiomas typically includes a nodular lesion with a reddish-blue discoloration and blanching under pressure—features that are observed in this case (Figure 1 & Figure 2). These characteristics strongly suggest a vascular origin; however, they are not pathognomonic and may overlap with other vascular anomalies such as lymphangiomas, arteriovenous malformations, or pyogenic granulomas. The lesion in this case is well-defined and confined to the anterior one-third of the tongue, causing pain, difficulty swallowing, and impaired speech—symptoms that significantly impact the patient's quality of life.

The slow but progressive growth of the lesion aligns with the natural history of adult hemangiomas. While clinical evaluation provides essential clues, it is insufficient to differentiate the hemangioma from other conditions. This highlights the



Fig. 1: Intra oral photograph showing a red lesion on the right side dorsum of the tongue



Fig. 2: Intraoral photographs showing the lesion on the lateral side of the tongue.



Fig. 3: Ultrasonographic image of the tongue lesion showing internal vascular characteristics.

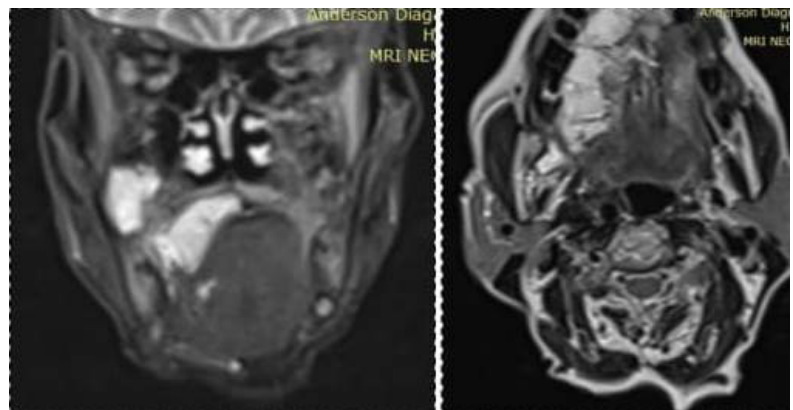


Fig. 4: Magnetic resonance imaging (MRI) of the tongue lesion demonstrating its extent and internal characteristics.

importance of incorporating advanced imaging techniques to confirm the diagnosis and guide treatment planning.

Diagnostic Role of Imaging:

Advanced imaging modalities play a pivotal role in confirming the diagnosis and delineating the extent of the lesion in this case. Each modality offers unique insights:

Ultrasound: As a first-line imaging tool, ultrasound provides real-time visualization of the lesion and reveals its hypoechoic and lobulated structure. The absence of deep tissue involvement or posterior extension is confirmed, facilitating precise localization of the lesion (Figure 3).

MRI: Magnetic resonance imaging plays a critical role in characterizing the lesion's internal architecture. The hyperintense signal on T2-weighted images, coupled with the presence of intralesional phleboliths, is diagnostic of a hemangioma. MRI also excludes malignancy and deep infiltration, which would alter the therapeutic approach (Figure 4).

Color Doppler Imaging: This modality confirms active central vascular flow within the lesion, further substantiating its vascular origin and ruling out non-vascular masses such as fibromas or neurofibromas. The evaluation of blood flow patterns also provides insights into the lesion's vascular dynamics, aiding in treatment planning (Figure 5).

The integration of these imaging techniques ensures accurate diagnosis, minimizes the need for invasive procedures, and guides the selection of an appropriate therapeutic approach. This case exemplifies the importance of imaging in the non-invasive assessment of vascular anomalies⁸.

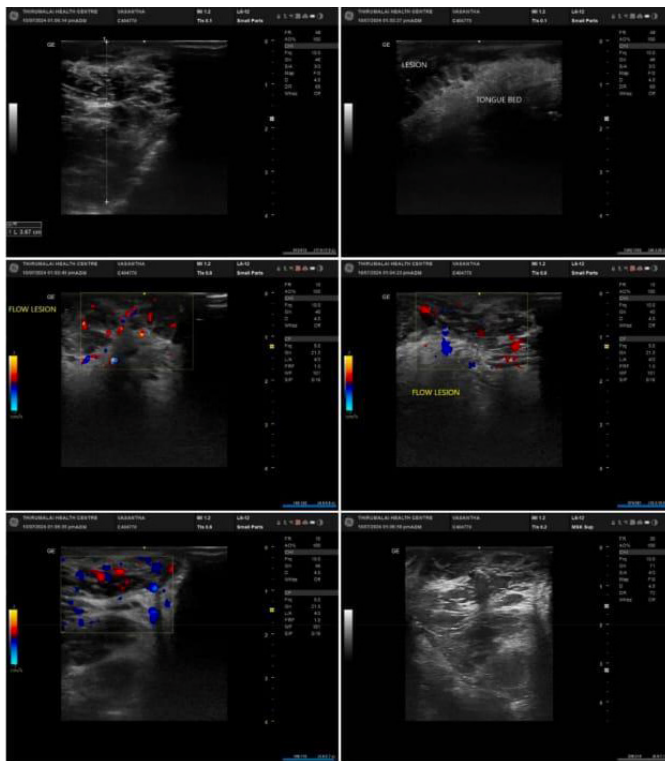


Fig. 5: Color Doppler imaging showing prominent vascular flow within the tongue lesion.

Therapeutic Advances with Sclerotherapy:

Sclerotherapy becomes a cornerstone in the management of vascular anomalies, offering a minimally invasive alternative to surgical excision. Bleomycin, a cytotoxic and anti-angiogenic agent, gains prominence due to its efficacy and safety in treating hemangiomas. Its mechanism of action involves the induction of endothelial apoptosis and subsequent fibrosis, leading to gradual regression of the vascular lesion⁹.

In this case, weekly intralesional injections of Bleomycin are administered under ultrasound guidance to ensure precise delivery into the lesion (Figure 6). The localized action of Bleomycin minimizes systemic toxicity and avoids damage to surrounding healthy tissues. The treatment is well-tolerated, and the patient experiences no complications. The progressive reduction in lesion size and improvement in function over six weeks highlight the effectiveness of Bleomycin as a first-line therapy for oral hemangiomas.

Advantages Over Surgical Excision:

Surgical excision, though historically the treatment of choice for hemangiomas, is associated with significant risks, particularly in vascular-rich and functionally sensitive areas like the tongue. Potential complications include excessive intraoperative bleeding, postoperative scarring, and long-term functional deficits, which could significantly impact speech and swallowing¹⁰.

In contrast, Bleomycin sclerotherapy offers several advantages¹¹:

It is minimally invasive and avoids the risks of general anesthesia.



Fig. 6: Clinical image taken during sclerotherapy showing intralesional injection of the sclerosant agent into the lesion

It preserves the functional and aesthetic integrity of the affected area.

The risk of recurrence is significantly lower due to its targeted action on endothelial cells.

This case demonstrates the superiority of Bleomycin therapy in managing tongue hemangiomas, as it effectively reduces lesion size while maintaining optimal functional and cosmetic outcomes.

Functional and Aesthetic Outcomes:

The restoration of functional abilities, including speech and swallowing, remains a primary goal of treatment in this case. The patient experiences significant improvements in these areas by the end of therapy, with no residual functional deficits. Additionally, the absence of visible scarring or deformity highlights the importance of minimally invasive treatments that prioritize both clinical and cosmetic outcomes¹².

The successful preservation of tongue mobility and appearance reflects the efficacy of Bleomycin therapy in addressing the unique challenges posed by oral hemangiomas. These outcomes emphasize the role of patient-centered approaches in achieving comprehensive care.

Comparison with Other Sclerosing Agents:

Several sclerosing agents, including ethanol, polidocanol, and sodium tetradecyl sulfate, are used in the management of vascular anomalies. However, Bleomycin offers distinct advantages¹³:

Its localized action reduces the risk of systemic side effects.

It has a lower incidence of tissue necrosis compared to ethanol-based agents.

Its anti-angiogenic properties make it particularly effective for vascular-rich lesions.

In this case, the choice of Bleomycin is guided by its favorable safety and efficacy profile, which is evident in the patient's rapid clinical improvement and absence of complications.

Long-Term Prognosis:

The patient remains symptom-free during six months of follow-up, with no evidence of recurrence. The durable effects of Bleomycin therapy, combined with regular monitoring, make it a reliable option for the long-term management of hemangiomas¹⁴. Ensuring sustained outcomes in dynamic regions like the tongue requires ongoing evaluation, but the initial success in this case supports the use of Bleomycin as a definitive treatment¹⁵.

CONCLUSION

This case report illustrated the successful management of a tongue hemangioma in an adult using advanced imaging and Bleomycin sclerotherapy. The integration of imaging-based diagnostics allowed for precise characterization of the lesion, enabling effective and minimally invasive treatment. The outcomes achieved, including significant functional restoration and aesthetic preservation, set a benchmark for managing vascular anomalies in critical anatomical locations. This case high-

lighted the importance of tailored, patient-centered approaches in achieving optimal clinical results.

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REFERENCES

1. Gupta S, Kumar R, Pandav G et al. Oral haemangiomas-Series of two case reports and review of management. *Journal of Family Medicine and Primary Care*. 2022 Jun 1;11(6):3308-11.
2. Jorge MI, Brinkmann JC, Corchón AG, Ocaña RA. Diagnostic challenge and management of intraosseous mandibular hemangiomas: a case report and literature review. *Journal of the Korean Association of Oral and Maxillofacial Surgeons*. 2021 Aug 31;47(4):321-6.
3. Kalra Y, Goyal A, Babu M, Chavan P, Ingale M. Cavernous Hemangioma of the Tongue in an Adult. *Cureus*. 2024 Jun 20;16(6).
4. de Oliveira Campos JJ, de Medeiros ER, da Costa EH, de Paula JV, Xavier LG, Medeiros CK, da Cruz Lima JG. Current concepts related to the diagnosis and treatment of hemangioma: literature review. *Research, Society and Development*. 2021 Jan 24;10(1):e45510112001-.
5. Soman S, Das TA, Kalathil LS, Aslam S, Thomas T, Depesh V. Hemangiomas of the oral and maxillofacial region: a series of five cases with literature review. *International Journal of Oral Care and Research*. 2020 Oct 1;8(4):97-102.
6. Kharkate S, Mohod S, Kukde M et al. Hemangioma of Tongue: A Case Report. *Cureus*. 2024 Aug 16;16(8):e67044..
7. Hasan S, Khan A, Banerjee A, et al. Infantile hemangioma of upper lip: report of a rare case with brief review of literature. *Cureus*. 2023 Jul;15(7).
8. Sonar PR, Panchbhai A, Dhole P. Tongue hemangioma on dorsal surface: case report. *Cureus*. 2023 Nov;15(11).
9. Eguchi T, Kawaguchi K, Ishizuka T, et al. Intratumoral ligation for large venous malformation of tongue. *Journal of Stomatology, Oral and Maxillofacial Surgery*. 2023 Dec 1;124(6):101464.
10. Vlahovic A, Gazikalovic A, Adijic O. Bleomycin sclerotherapy for lymphatic malformation after unsuccessful surgical excision: case report. *Acta Otorhinolaryngologica Italica*. 2015 Oct;35(5).
11. Mittal A, Anand R, Gauba R, Choudhury SR, Abbey P. A step-by-step sonographic approach to vascular anomalies in the pediatric population: a pictorial essay. *Indian Journal of Radiology and Imaging*. 2021 Jan;31(01):157-71.
12. Jan I, Shah A, Beigh SH. Therapeutic effects of intralesional bleomycin sclerotherapy for non-invasive management of low flow vascular malformations-A prospective clinical study. *Annals of Maxillofacial Surgery*. 2022 Jul 1;12(2):151-6.
13. Nevesny F, Chevallier O, Falvo N, Guillen K, Malakhia A, Pellegrinelli J, Comby PO, Bonniaud B, Midulla M, Loffroy R. Bleomycin for percutaneous sclerotherapy of venous and lymphatic malformations: a retrospective study of safety, efficacy and mid-term outcomes in 26 patients. *Journal of Clinical Medicine*. 2021 Mar 22;10(6):1302.
14. Bhatnagar A, Upadhyaya VD, Kumar B, Neyaz Z, Kushwaha A. Aqueous intralesional bleomycin sclerotherapy in lymphatic malformation: Our experience with children and adult. *National Journal of Maxillofacial Surgery*. 2017 Jul 1;8(2):130-5.
15. Johnson AB, Richter GT. Surgical considerations in vascular malformations. *Techniques in Vascular and Interventional Radiology*. 2019 Dec 1;22(4):100635.

