



CASE REPORT

Rare localization of tongue vascular lesion detected by multi-parametric magnetic resonance imaging

Antonio Gilardi¹  | Massimo Ralli¹ | Andrea Colizza¹ | Arianna Di Stadio²  | Daniela Messineo³ | Mara Riminucci⁴ | Alessandro Corsi⁴ | Antonio Greco¹ | Marco de Vincentiis⁵

¹Department of Sense Organs, Sapienza University of Rome, Rome, Italy

²Department GF Ingrassia, Otolaryngology, University Hospital of Catania, Perugia, Italy

³Department of Radiological, Oncological and Pathological Sciences, Sapienza University of Rome, Rome, Italy

⁴Department of Molecular Medicine, Sapienza University of Rome, Rome, Italy

⁵Department of Oral and Maxillofacial Sciences, Sapienza University of Rome, Rome, Italy

Correspondence

Arianna Di Stadio, Department GF Ingrassia, Otolaryngology, University of Catania, Catania, Italy.
Email: ariannadistadio@hotmail.com

Funding information

The authors received no financial support for the research, authorship, and/or publication of this article

Abstract

Hemangiomas are developmental vascular abnormalities that are common in the head and neck (60%), rare in the oral cavity, and uncommon in the tongue. A patient performed a multi-parametric MRI, which characterized the lesion of his tongue, providing relevant information for diagnostic, therapeutic orientation, and realization of slight aggressive surgery with consequent excellent recovery.

KEYWORDS

differential diagnosis, hemangioma, MRI, surgical planning, tongue cancer

Hemangiomas are developmental vascular abnormalities arising in the head and neck in over 60% of the cases.¹ These benign tumors are distinguished as a capillary form and a cavernous form. Capillary hemangioma is composed of many small capillaries in a single layer of endothelial cells supported by a connective tissue stroma of varying densities, while cavernous hemangioma is formed by large-walled vessels lined by endothelial cells separated by a thin layer of connective tissue septa.² Although hemangioma is considered one of the most common soft tissue tumors of the head and neck, the cavernous form is relatively rare in the oral cavity and uncommonly encountered in the tongue.³ Diagnosis of hemangioma can be performed using different methods such as computed

tomography (CT), magnetic resonance imaging (MRI), and color Doppler ultrasound, especially to study the vascular pattern. Although the therapeutic approach depends on numerous factors, the surgical approach seems to be the treatment of choice compared with others such as radiotherapy, cryotherapy, laser therapy, medical treatment, injection of sclerosing substances, and the selective embolization of the lingual artery.^{4,5}

We report the case of a 70-year-old patient with a purplish swelling in the right anterior portion of the tongue; the lesion appeared smooth and granular with well-defined borders at intra-oral examination. The patient reported a progressive volume increase in the mass over the past 3 years, without bleeding episodes. The patient

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2022 The Authors. *Clinical Case Reports* published by John Wiley & Sons Ltd.

reported the absence of pain and difficulty in speech and swallowing.

The patient underwent multi-parametric magnetic resonance imaging, a radiological examination in which the contrast of the images obtained is governed by a series of intrinsic parameters (T1, T2, proton density, and diffusive processes) (Figure 1).

Once the vascular lesion was identified, it was surgically removed under general anesthesia. Unlike a more aggressive approach described by other authors, a meticulous capsule blunt and cold blade dissection was performed allowing the preservation of healthy tissue to ensure excellent organic and functional recovery

(Figure 2). During the operating session, hemostasis was achieved through the targeted use of bipolar forceps and monopolar blades; thus, the excessive use of diathermo-coagulative instruments was limited in order to avoid excessive necrosis of the surrounding healthy tissues.

The benign vascular nature of the lesion was confirmed by the histological examination (Figure 3). The patient was subsequently evaluated at 10 days, and 1, 3, 6, 12, and 18 months after surgery recovering the full motility of the tongue. As of the past follow-up visit (18 months after surgery), no recurrence of disease was found.

The purpose of this paper was to underline the role of multi-parametric magnetic resonance imaging, which is

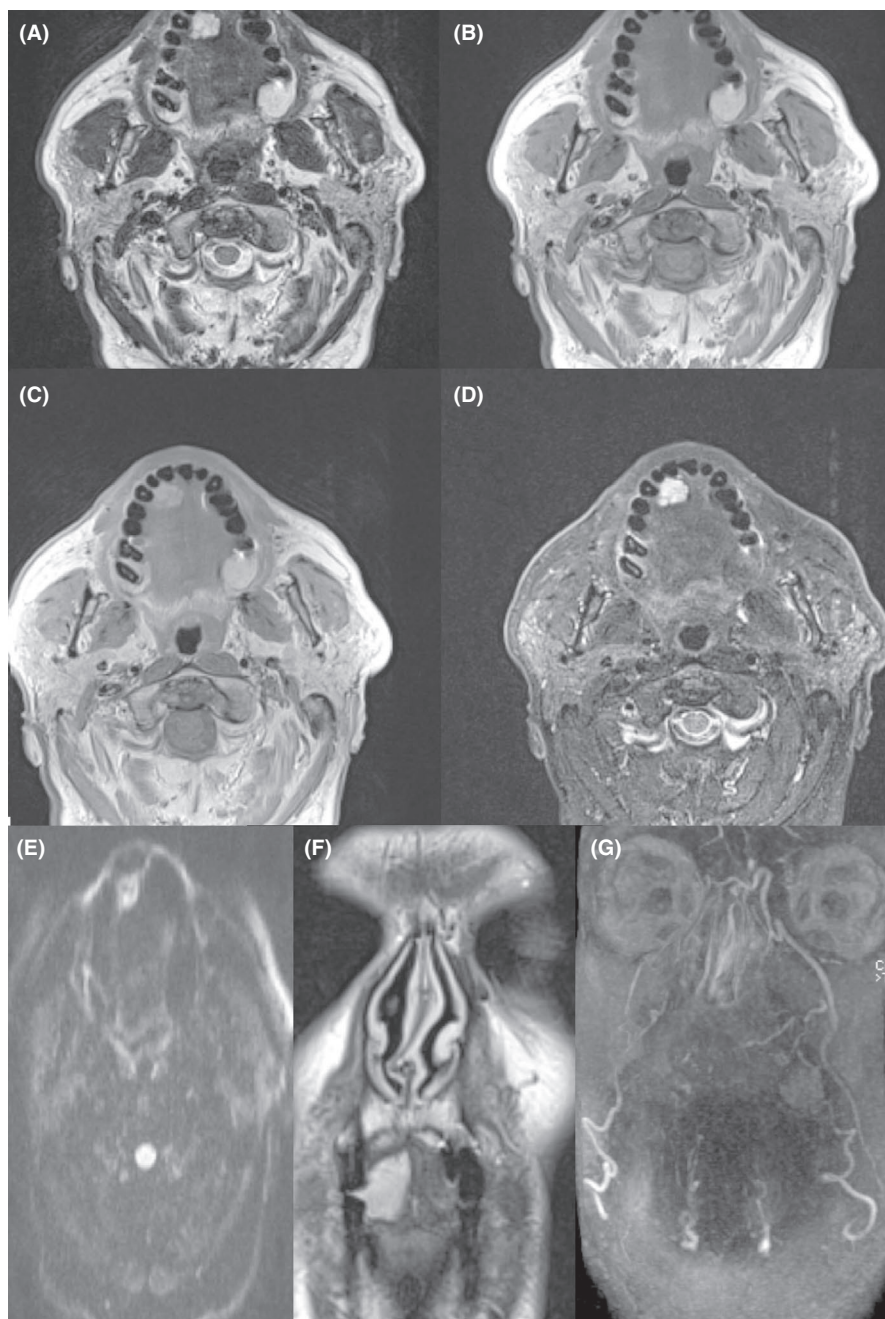


FIGURE 1 Axial T2-weighted MRI image shows a hyperintense lesion (A) that is isointense in T1-weighted without contrast (B) and hyperintense and well defined with clear and lobulated margins after contrast injection (C). With turbo inversion recovery magnitude sequences, thin internal septa are visible (D). Axial magnetic resonance imaging scan shows no signal restriction in diffusion-weighted imaging (E). The T2-weighted coronal scan shows a highly hyperintense lesion (F). Maximum intensity projection angiographic study shows significant "feeders" detectable in the anterior lingual region, with a small vascular agglomerate (G)

FIGURE 2 Pre- and postoperative photographic documentation of the purplish swelling in the right anterior portion of the tongue is illustrated in (A) and (B)

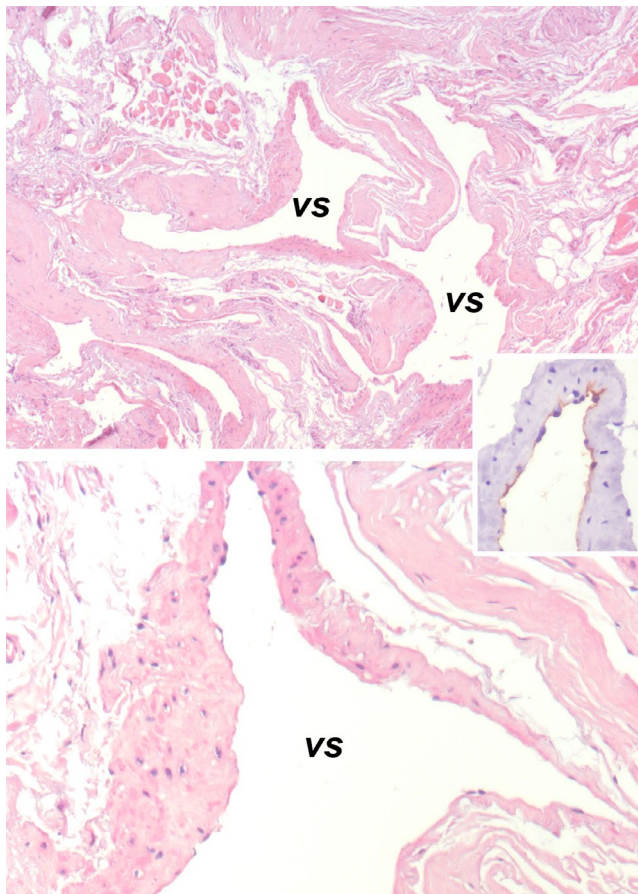
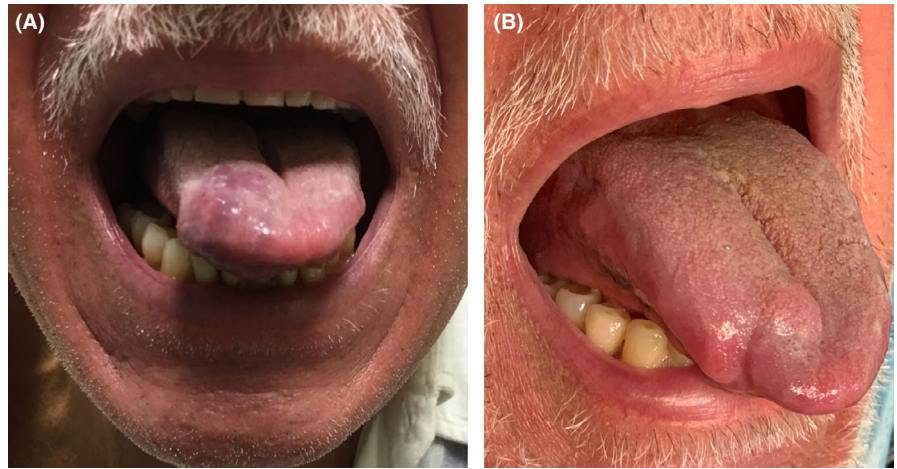


FIGURE 3 Low (top panel)- and high (bottom panel)-power magnification of the excised lesion. Each vascular space (vs) is lined by endothelial cells devoid of cytological atypia. In the insert, the endothelial cells are highlighted by immunostaining for CD31

usually used in the assessment of abdominal malignancies and in the characterization of vascularized tumors of the head and neck area.⁶ This method allows, in addition to the conventional morphological study, dynamic

perfusion assessment highlighting the vascular patterns by intravenous administration of the contrast. In this specific case, multi-parametric magnetic resonance imaging allowed to perfectly characterize the lesion of the tongue, providing relevant information for the diagnostic and therapeutic orientation in a quite rare tumor such as hemangioma.

For this reason, the authors recommend considering this type of preoperative imaging in the management of head and neck tumors, especially in the suspicion of hemangiomas and vascular lesions that may be particularly difficult to approach during surgery due to their rarity and proximity to noble structures.

ACKNOWLEDGEMENTS

None.

CONFLICTS OF INTERESTS

The authors declare no potential conflict of interests with respect to the research, authorship, and/or publication of this article.

AUTHOR CONTRIBUTION

All authors equally contributed to the article writing, and data collection and analysis.

ETHICAL APPROVAL

All the clinicopathologic investigations detailed in the manuscript have been conducted in accordance with the Declaration of Helsinki and its later amendments or comparable ethical standards.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available asking to the corresponding author.

ORCID

Antonio Gilardi  <https://orcid.org/0000-0002-5145-3152>

Arianna Di Stadio  <https://orcid.org/0000-0001-5510-3814>

REFERENCES

1. Kamala KA, Ashok L, Sujatha GP. Cavernous hemangioma of the tongue: a rare case report. *Contemp Clin Dent*. 2014;5(1):95-98. doi:10.4103/0976-237X.128680
2. Slaba S, Braidy C, Sader RB, Hokayem N, Nassar J. Malformation veineuse géante de la langue: intérêt du surgiflo [Giant venous malformation of the tongue: the value of Surgiflo]. *J Mal Vasc*. 2010;35(3):197-201. doi:10.1016/j.jmv.2010.03.004
3. Khanduri S, Agrawal D, Varshney G, Singh N. Haemangioma of tongue: a rare case report. *J Oral Maxillofac Radiol*. 2015;3:25-27.
4. Okoje VN, Alonge TO, Olusanya AA. Intra-tumoral ligation and the injection of sclerosant in the treatment of lingual cavernous haemangioma. *Niger J Med*. 2011;20(1):172-175.
5. Avila ED, Molon RS, Conte Neto N, Gabrielli MA, Hochuli-Vieira E. Lip cavernous hemangioma in a young child. *Braz Dent J*. 2010;21(4):370-374. doi:10.1590/s0103-64402010000400015
6. Luna A, Pahwa S, Bonini C, Alcalá-Mata L, Wright KL, Gulani V. Multiparametric MR imaging in abdominal malignancies. *Magn Reson Imaging Clin N Am*. 2016;24(1):157-186. doi:10.1016/j.mric.2015.08.005

How to cite this article: Gilardi A, Ralli M, Colizza A, et al. Rare localization of tongue vascular lesion detected by multi-parametric magnetic resonance imaging. *Clin Case Rep*. 2022;10:e05300. doi:[10.1002/ccr3.5300](https://doi.org/10.1002/ccr3.5300)