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REPORTE DE CASO

DIAGNOSIS OF POST-TRAUMATIC ARTERIOVENOUS FISTULA ON THE BACK OF THE TONGUE: THE IMPORTANCE OF ULTRASONOGRAPHY

DIAGNÓSTICO DE FÍSTULA ARTERIOVENOSA POSTRAUMÁTICA EN EL DORSO DE LA LENGUA: LA IMPORTANCIA DE LA ECOGRAFÍA

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RESUMEN

Las fístulas arteriovenosas (FAV) son anomalías vasculares que pueden ocurrir después de un traumatismo en diferentes partes del cuerpo, incluida la cavidad bucal, estas anomalías pueden desencadenar varias consecuencias para el individuo afectado. Dicha anomalía puede clasificarse en adquirida, generalmente después de algún traumatismo o hemodiálisis, y congénita. Su diagnóstico, a su vez, es fundamental para el manejo del paciente, evitando complicaciones clínicas. En la cavidad bucal, aunque poco frecuente, puede afectar, especialmente, al dorso de la lengua. La ecografía es una técnica de imagen que puede ser útil en el diagnóstico de FAV en la lengua. Esta técnica permite visualizar estructuras vasculares en tiempo real, evaluar el flujo sanguíneo e identificar anomalías como las FAV. El presente estudio tiene como objetivo reportar el caso de una paciente femenina de 39 años que presentó una FAV postraumática por objeto extraño en la región del dorso derecho de la lengua. Durante la evaluación profesional fue posible utilizar la ecografía Doppler color para dilucidar la presencia de flujo venoso y arterial en la región anormal, corroborando los hallazgos clínicos y siendo fundamental para cerrar el diagnóstico, denotando el importante papel de este examen de imagen.

Palabras clave: Fístula vascular, boca, lengua, ultrasonografía doppler, ultrasonografía (DeCS)

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ABSTRACT

Arteriovenous fistulas (AVF) are vascular anomalies that can occur after trauma in different parts of the body, including the oral cavity, these abnormalities can trigger several consequences for the affected individual. Such abnormality can be classified as acquired, usually after some trauma or hemodialysis, and congenital. Its diagnosis, in turn, is essential for the management of the patient, avoiding clinical complications. In the oral cavity, although rare, it can affect, especially, the dorsum of the tongue. Ultrasonography is an imaging technique that can be useful in diagnosing AVF in the tongue. This technique allows visualizing vascular structures in real time, assessing blood flow and identifying anomalies such as AVFs. The present study aims to report a case of a 39-year-old female patient who presented a post-traumatic AVF caused by a foreign object in the region of the right dorsum of the tongue. During the professional evaluation, it was possible to use color Doppler ultrasonography to elucidate the presence of venous and arterial flow in the abnormal region, corroborating the clinical findings and being essential to close the diagnosis, denoting the important role of this imaging exam.

Key words: Vascular fistula, mouth, tongue, doppler ultrasonography, ultrasonography (MeSH)

INTRODUCTION

Arteriovenous fistulas (AVF) are vascular anomalies that can occur after trauma to various parts of the body, including the oral cavity¹. These anomalous connections between arteries and veins can be asymptomatic, but in some cases, they can lead to serious complications, such as bleeding, embolizations and heart failure². The AVFs can be classified in congenital and acquired. Acquired ones, in turn, can be created through surgical procedures, such as the need for hemodialysis; and as a result of vascular injuries associated with trauma or iatrogenic^{3,4}

Due to the rarity of the condition, there is little literature on the exact prevalence of AVFs in the cavity. They can develop congenitally or acquired, with congenital originating from failures in vascular development. Clinically, there will be the presence of a nodular, purplish-colored lesion with slower healing and aesthetic and/or functional discomfort, depending on the extent⁵. AVFs mainly affect areas of intense mechanical contact, such as the lateral border and dorsum of the tongue. These regions are areas vulnerable to trauma, whether due to falls or car accidents,

which is the main etiological factor of AVFs in the tongue. Lesions in this region can affect underlying vascular structures, leading to the formation of AVFs⁶.

However, the diagnosis of AVF in the tongue can be challenging, due to the difficulty in visualizing the vascular structures in this region⁶. It is important to reaffirm that AVFs in the tongue are rare and early diagnosis is essential for successful treatment^{6,7}.

Ultrasonography is an imaging technique that can be useful in diagnosing AVF in the tongue. This technique allows you to visualize vascular structures in real time, evaluate blood flow and identify anomalies such as AVFs^{5,7}. Ultrasound can be performed with a linear transducer probe, which is capable of providing high-resolution images of the lingual region, without the need for exposure to ionizing rays. Furthermore, ultrasound is a non-invasive, safe and low-cost examination compared to computed tomography and magnetic resonance imaging, making it an excellent alternative for this diagnosis⁵.

This article aims to report a case of post-traumatic AVF on the lateral border of the tongue, highlighting the importance of ultrasound for the final diagnosis. The clinical

characteristics of the lesion will be discussed, as well as the advantages of ultrasound in relation to other imaging techniques in diagnosing AVF in the tongue.

CASE PRESENTATION

A 39-year-old female patient sought dental care reporting that she had suffered trauma to her tongue while using a toothpick. She reported that, after the trauma, she noticed swelling in the affected area, as well as pain and bleeding.

During the clinical examination, it was observed the presence of a lesion located on the right dorsum of the tongue, with a nodular appearance, single, purplish color, measuring approximately 0.5 x 0.3 cm in its largest diameters, of elastic consistency, painless to palpation and fixed in relation to adjacent tissues (Figure 1A). The patient was asked about the possibility of having

any previous history of trauma or surgery in the region, but she denied any relevant history.

A diascopy or vitropressure maneuver was performed using a glass slide, applying a uniform force, where an extravasation of blood was observed, with dispersion of hemoglobin, causing a disappearance of the characteristic color (Figure 1B). A panoramic radiography was requested, which did not reveal any bone abnormalities in the region.

Next, a color Doppler was performed to assess the nature of the AVF and its size, which allowed confirmation of the presence of arterial and venous blood flow in the affected area.

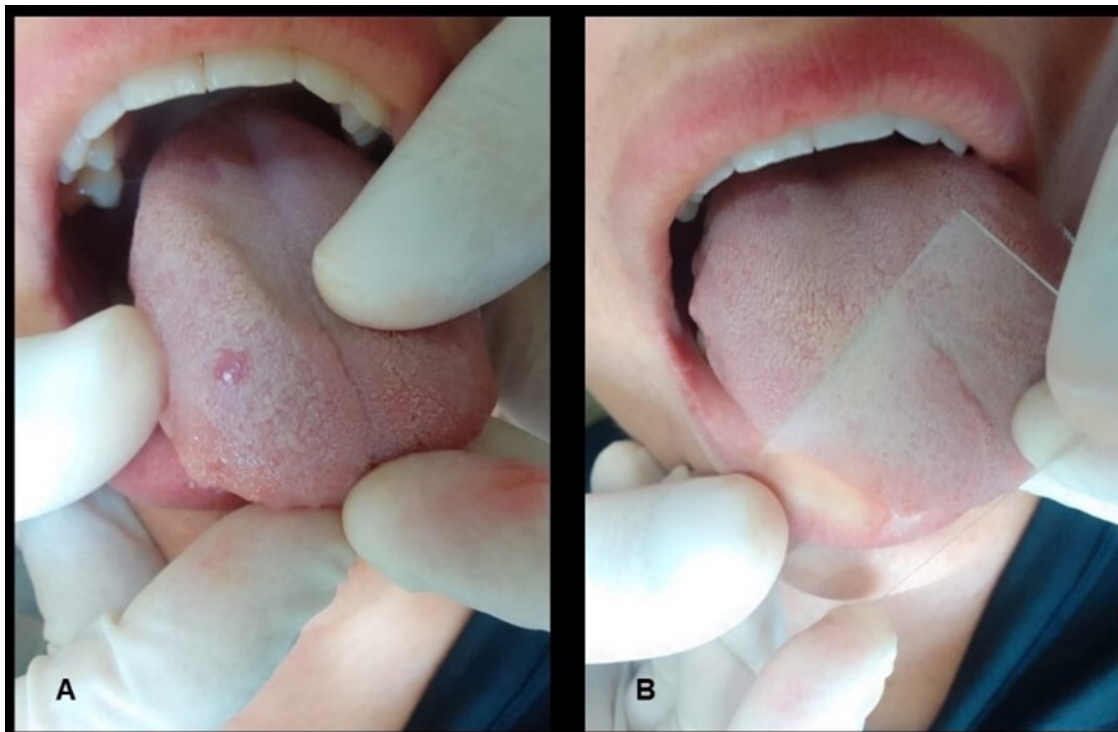


Figura 1. (a) Purple nodular lesion on the right dorsum of the tongue (b) Performing diascopy or vitropressure with ischemia of the affected region.

The examination was performed through oral access with a high-resolution linear transducer, revealing a hypoechoic nodular image with lobulated contours and partially defined limits, measuring approximately 0.45 x 0.29 cm, located in the mucosa/submucosa topography of the right lateral border of the tongue, anteriorly, with underlying hypoechoic structures, composed of arterial and venous vessels with areas of aliasing inside. Other portions evaluated without changes (Figure 2).

The patient was referred to a specialist in vascular surgery to perform embolization of the artery responsible for the AVF. After the procedure, the patient showed significant improvement. During clinical follow-up, it was observed that the arteriovenous fistula had completely resolved. The patient was advised to avoid using sharp objects in her mouth, especially toothpicks, to prevent recurrence of such trauma and its effects.

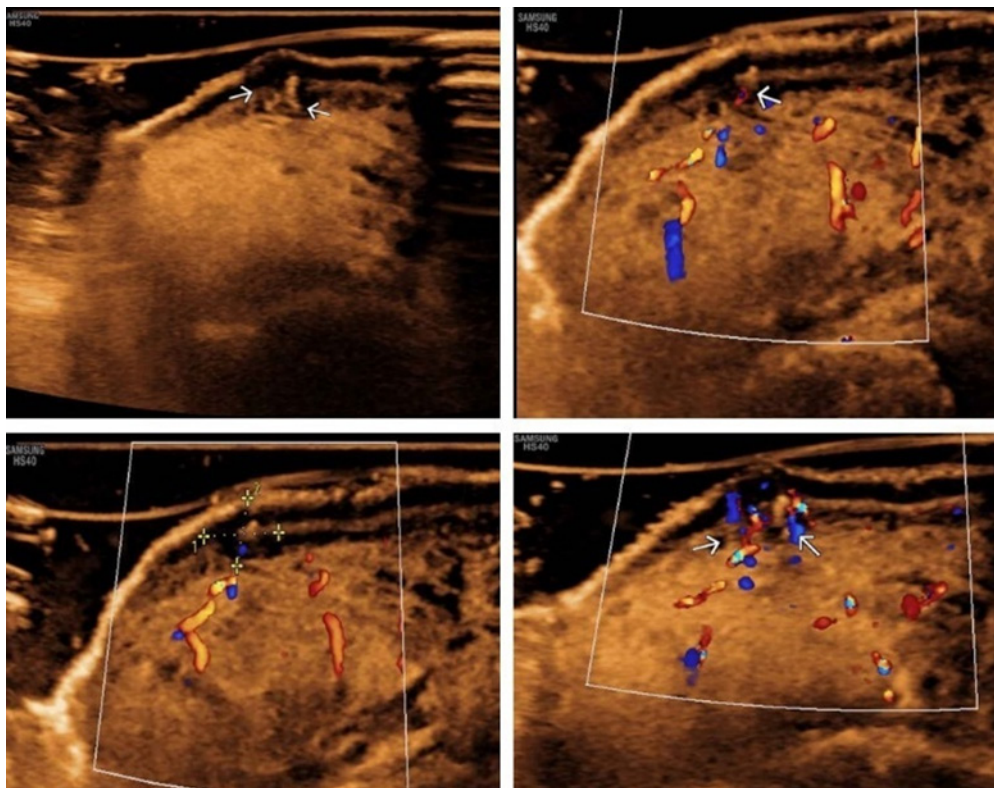


Figura 2. Vascular hypoechoic image (Arrows) in the mucosa/submucosa topography of the right lateral border of the tongue, anteriorly, suggesting a post-traumatic arteriovenous fistula.

DISCUSSION

AVF in the oral cavity can occur in various locations, the most common being the tongue, lips and palate⁸. In the tongue, an AVF can occur after trauma, as in the case of injuries caused by toothpicks, as noted in the case in question; or due to vascular diseases such as hereditary

hemorrhagic telangiectasia (Rendu-Osler-Weber disease)^{6,9-11}. In the lips and palate, AVFs can be associated with traumatic injuries, such as needle punctures, piercings and blunt trauma⁸.

The clinical case report presented is of great importance for several reasons. Firstly, oral

trauma with a toothpick is a relatively common occurrence in dental practice and can result in several complications, as in the case of the patient in question who developed AVF in the tongue^{9,10}.

Ultrasonographic evaluation is essential for the accurate diagnosis of oral lesions, as demonstrated in this clinical case. The fact that it offers a high quality and radiation-free image; real-time images; ease of access and low cost are criteria that make this method eligible compared to others^{5,7}. Color Doppler is an ultrasound technique that allows you to evaluate blood flow in real time, which is especially useful for detecting AVFs. The examination showed that the lesion was vascular, with arterial and venous blood flow, confirming the diagnosis of AVF⁵.

The patient presented with a nodule on the right lateral edge of the tongue, which was initially

attributed to trauma with a toothpick. However, ultrasound evaluation revealed the presence of AVF, which is an anomalous communication between an artery and a vein^{8,11}.

Embolization of the artery responsible for the AVF is an effective procedure for treating this condition, as was performed in this patient. The importance of ultrasound evaluation is evident in this case, as the lesion was not easily identified on clinical examination, but was promptly diagnosed by ultrasound^{5,7,12}.

This case highlights the importance of careful evaluation of oral lesions, especially in patients who report trauma or have lesions that do not improve after initial treatment. Ultrasonography is a valuable tool for diagnosing oral vascular lesions, such as AVF, and should be considered as part of the initial evaluation of these patients⁵.

CONCLUSIONS

AVFs, although rare in the oral cavity, can occur and lead to important clinical repercussions, depending on the magnitude. Its diagnosis is related to the levels of progression of the disease and must therefore be carried out quickly and accurately. The use of Doppler ultrasonography plays an important role in this dynamic, allowing the visualization of vascular structures in a dynamic and safe way, allowing vascular assessment in real time. The approach taken by this work contributes significantly to the differential diagnosis aspects of this condition. We believe that new studies must be carried out, aiming at uniformity and

deepening the clinical approach to diagnostic methods.

Conflict of interest: The authors declare that they have no conflict of interest with this work.

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