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Case Report

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Evasive Eragrostis: A Unique Case of Intralingual Plant Implantation with Persistent Viability

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ABSTRACT

Foreign body (FB) entrapment in the oral cavity is not an implausible occurrence given the nature and function of the digestive tract. However, foreign body implantation of plant matter in the tongue is a rare phenomenon with little literature to date. This case report describes a 23-year-old male with no significant medical history experiencing an enlarged mass of changing morphology on the anterolateral border of the tongue. A retained grass FB of the genus Eragrostis was identified upon spontaneous release from the lesion, and the patient's pain subsided without operative intervention. This report aims to bring awareness to healthcare providers about the possibility of organic material embedding within human tissue and mimicking infectious or inflammatory pathology. Combined with the appropriate diagnostic tools, this approach can expedite diagnosis and treatment.

Keywords: Intralingual Implantation, Tongue, Foreign Body, Eragrostis Plant

Introduction

Although foreign bodies within the oral cavity are well-understood from a functional perspective and are infrequently described within the literature, their etiology and presentation can be puzzling for provider and patient alike. Previously described diagnostic challenges involve biological and non-biological objects such as dental materials including endodontic filling material, metal fragments, and even germinating fig seeds with fish bones being the most common [1-4].

While oral implantation of FBs is generally uncommon, they are most frequently reported in the oropharyngeal region [5]. However, they can occasionally be found in the tongue. If embedded intralingually, they are most commonly induced by trauma and/or ingestion and lodged superficially in the anterior two-thirds and lateral border of the tongue with an average depth of 0.61 +/- 0.2cm [6]. In contrast, FBs deeply or completely implanted within the mobile tongue are rare. Consequently, intralingual FB implantation is not routinely considered in the initial differential diagnosis and are often misinterpreted as a neoplastic lesion [7-8]. If a FB is left untreated, it can cause granulomatous formation, leading to pain, inflammation, and/or infection [2]. However, these cases are usually self-limiting, with most patients experiencing no sequelae upon FB removal. Diagnostic tools such as computed tomography (CT), magnetic resonance imaging (MRI), ultrasound, and histopathology can assist in the identification and extraction of FBs.

We report the case of a young male with no significant medical history who presented with an enlarged mass of changing morphology on the anterolateral border of the tongue, caused by the intralingual implantation of the Eragrostis plant. To date, there are no reports in literature involving the unusual implantation of this plant species. It is important to understand the clinical, radiographic, and histologic findings of this rare case to aid in the diagnosis and effective treatment of patients with similar findings.

Case Presentation

Initial Presentation

A 23-year-old male with no significant medical history presented to the oral surgery clinic with the complaint of a swollen tongue

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over the intervening five days. The patient reported mild pain only upon swallowing and speaking, and stated that the left side of his tongue suddenly became swollen the week before and had since remained unchanged. In order to expedite imaging and rule out an allergic etiology, the patient was referred to the Emergency Department.

A maxillofacial CT with contrast was taken and described a "generalized central hyperemia, swelling characteristic of glossitis, and a small left-sided organizing 5 mm fluid collection." On physical examination, the submucosal lesion located directly left of the midline of the tongue measured 2x3 cm and was smooth, firm, fixed, and tender to palpation without obvious fluctuance. (Figure. 1A) In addition, the patient had a patchy, denuded dorsal tongue with generalized geographic tongue and white patches that did not wipe off. (Figure. 1B)

The patient denied any allergies, trauma, similar episodes in the past, tobacco, alcohol, systemic illness, family history of head and neck cancer, and parafunctional habits. Additionally, he denied chewing on any grass or seeds such as sunflower seeds. He had no constitutional symptoms or lymphadenopathy. The patient was taking Tylenol for acute tongue pain but denied other pharmacologic intervention. Due to the mixed clinical picture, original differential diagnoses included candidiasis, traumatic fibroma, vascular lesion, schwannoma, and bacterial infection. After consultation with the Radiology department, a MRI of the lesion was ordered to further aid in the diagnosis of the intralingual soft tissue prior to incisional biopsy and drainage of the associated fluid collection.

The MRI findings revealed "a mild asymmetric enlargement on the left intrinsic tongue musculature with increased T2 signal. Linear T2 hyperintensity with surrounding irregular enhancement measuring approximately 12 mm in transverse dimension and extending from the anterior one third of the tongue to the root of the tongue on the left, which spans approximately 4.1 cm in length consistent with a nonspecific inflamed tubular structure, possibly abscess or sinus tract." There were no MRI findings to represent a vascular lesion such as an Arteriovenous malformation (AVM).

Figure 1:
(A) Lateral view of the raised, enlarged mass to the left of the midline of the tongue during initial presentation.
(B) Anterior view of the patchy, denuded dorsal tongue with generalized geographic tongue during initial presentation.
(C) Lateral view of the raised, enlarged mass shifted to the right of the midline of the tongue during subsequent follow-up.
(D) Anterior view of the persistent patchy, denuded dorsal tongue with generalized geographic tongue during subsequent follow-up.

Subsequent Follow-up

The patient's tongue lesion was reassessed five days after the initial evaluation. At this visit, the lesion had decreased in size, however, it had now migrated to the right dorsal tongue. The lesion presented as a submucosal, 1x1 cm firm, painful lesion along the right side of the tongue. It was tender to palpation without obvious fluctuance. (Figure 1C) A patchy, denuded dorsal tongue with a generalized geographic tongue remained. (Figure 1D) There was a high suspicion for inflammatory versus infectious etiology at this stage. A one-week course of Augmentin was prescribed with intentions to take the patient to the operating room the following week for biopsy.

In the Interim

The patient called the provider three days after the initial follow-up stating that the lesion suddenly "popped" and that "something was coming out" of it. (Figure. 2A) The patient proceeded to pull a plant out of the lesion with associated purulence expressed. (Figure. 2B) The patient was instructed to keep the plant dry and bring it to their follow-up appointment the following week. (Figure. 2C)

Figure 2:
(A) Patient-provided image of the FB coming out the tongue mass.
(B) Patient-provided image of the FB extracted from the tongue by the patient.
(C) Image of the dried FB.

Second Follow-Up

The patient was seen for a follow-up 4 days after the plant was pulled from their tongue. Since this event, the lesion decreased in size and the pain significantly decreased. (Figure. 3A) The previously noted patchy, denuded dorsal tongue with generalized geographic tongue had since been resolved. (Figure. 3B)

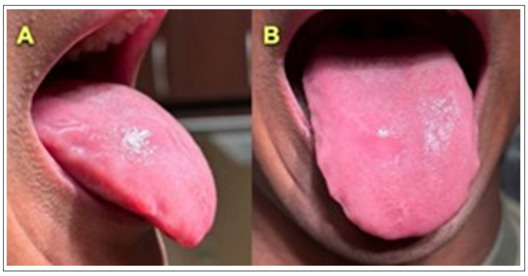

Figure 3:
(A) Lateral view of the lingual mass four days post-FB extraction.
(B) Anterior view of the resolved patchy, denuded tongue with generalized geographic tongue four days post-FB extraction.

Upon receipt of the plant and with the patient's permission, the specimen was sent to the Botany Department at the University of South Carolina for identification by Drs. Herrick Brown and John Nelson. The species was identified in the genus Eragrostis.

Figure 4:
(A)Microscopic view of the FB sample at 40x magnification.
(B)Microscopic view of the USCH Accession # 42607 Eragrostis intermedia from Brewster Co., TX at 40x magnification.

Images courtesy of the University of South Carolina A.C. Moore Herbarium (USCH).

Discussion

FB implantation is seldom the first diagnosis for enlarged tongue masses, especially in patients with no past history of FB-related events nor recollection of recent FB ingestion or trauma. Since these masses usually present with nonspecific symptoms that mimic more common conditions such as benign or even malignant neoplasms, they are usually misdiagnosed. In this case, the patient denied any pertinent medical history, other than acute tongue pain, that would otherwise signal FB suspicion. Furthermore, diagnostic imaging found no tracings of FBs and only mentioned the presence of inflammation and early manifestations of abscess formation. Thus, the presence of a FB was not considered at that time due to the difficulty of early recognition.

To date, there is little literature on the intralingual retention of plant fragments. Most oral FBs include fish bones, dental materials, and metal shards [1,2,4-6,9]. Their frequent reporting may be related to greater oral exposure compared with other FBs and the ability for their sharper surfaces to more easily penetrate the oral cavity. This case is unusual though considering the identified FB was neither an object typically exposed to the oral cavity nor sharp in nature.

In this case, the FB released from the patient's lingual mass was identified by the University of South Carolina's A.C. Moore Herbarium (USCH) as a grass species in the genus Eragrostis or "Lovegrass". Further analysis suggested that the specimen was consistent with Eragrostis intermedia, a native to El Paso known for its high level of adaptability which may explain its ability to emerge green, indicating photosynthesis, despite weeks of implantation. (Figure. 4)

Building on these considerations, FB-related enlarged tongue masses can mimic pathologies like those from the initial differential diagnosis: candidiasis, traumatic fibromas, vascular lesions (e.g. AVM), schwannomas, or bacterial infections. They are most commonly misdiagnosed as neoplasms; in one study, nearly half of the patients with lingual-retained FBs were initially suspected of having a tumor [6]. Despite this overlap, FB-related masses often have distinct reactive features—such as acute onset following a history of trauma or ingestion, abscess formation, lack of strong correlation with tobacco or alcohol use, and self-limiting behavior following FB extraction—that contrast with the slow-growing nature of benign tumors and risk factors of malignant tumors [10-15].

If the lesion was left untreated and the FB was not removed, the patient could have experienced recurrent abscesses. As seen in Pradhan et. al, a patient presented with a buccal abscess and was treated with multiple incision and drainage procedures. The patient repeatedly formed the buccal abscess until initially unsuspected grass fragments found in their buccal mucosa were eventually removed. Delayed recognition or treatment of the lingual lesion could have conceivably led to airway obstruction if left unmonitored and untreated. Thus, it is vital to have proper diagnostic protocols in place to ensure these patient encounters are treated expeditiously.

While both a maxillofacial CT and MRI were performed, the only significant findings revealed the early manifestations of an abscess and fluid accumulation, respectively. However, no FBs were detected. This may have been due to the thickness of the CT slices. In a case reported by Guo et al., when their CT images were set to a thickness of 5 mm, they were only able to visualize certain FBs; however, when set to a thin-slice thickness of 0.6 mm in combination with multiplanar reformation, they were able to detect fine FBs that would have normally been missed. It is important to consider in their study though that 26 out of the 28 patients had intralingual retention of fish bones. It may have been easier to detect the fish bones on the CT due to their higher density, radiopaque, calcified state compared to FBs like plants that lack dense material and typically appear radiolucent. Thus, in addition to ordering a thin-sliced thickness CT with multiplanar reformation, it is also suggested to request for contrast enhancement. Careful interpretation should be performed due to the potential overlap in appearance of plant material, fluid, and soft tissue [16,17].

Conclusion

In summary, this case highlights that intralingual implantation of plant material, though rare, is a plausible and easily overlooked source of enlarged tongue masses. Since presentations due to such FBs can closely resemble other infectious and inflammatory lesions, it is recommended that clinicians maintain a broad differential and consider FB retention even in the absence of a reported history of trauma, ingestion, or FB-related events. Heightened awareness combined with the appropriate usage and interpretation of diagnostic imaging can aid in reducing diagnostic delays and ensure timely treatment.

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