

CASE REPORT**Glossal Abscess: An Unusual Presentation**

¹Isha Mishra, ²Freny Karjodkar, ³Kaustubh Sansare, ⁴Nimish Prakash, ⁵Amaresh Dora, ⁶Shikha Goyal

ABSTRACT

Tongue is an organ, i.e., constantly exposed to microbes and likelihood of trauma, yet does not usually show a predilection for developing an abscess. Cases of acute lingual swelling due to an abscess are unusual; hemorrhage, infarction, edema, and tumor being the commonly responsible etiologies. Herein, we report a case of glossal abscess that was chronic in nature (2 months' duration), presenting with uncharacteristic symptoms and no remission on taking antibiotics. In the absence of typical signs, Magnetic resonance imaging (MRI) provided an invaluable and accurate diagnosis, which allowed proper treatment to be rendered.

Keywords: Abscess, Glossal, Lingual, Magnetic resonance imaging, Tongue.

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INTRODUCTION

Tongue abscess is a rare condition encountered in dental practice. It is caused due to trauma or spread of infection from adjacent structures. Traumatic causes generally cause an abscess in the anterior two-thirds of the tongue and include injury to the tongue due to adjacent jagged teeth or ill-fitting prosthesis, tongue piercings, biting (during eating or an epileptic fit), fracture of the mandible, surgery, or foreign body impaction. Foreign body, typically fish-bone impaction, or odontogenic spread of infection from molars can cause a posterior tongue abscess. Lingual tonsillar lesions and infected thyroglossal duct cyst have also reportedly caused tongue abscess.¹ Certain anatomical and histologic characteristics of the tongue along with the immunological functions of saliva render it unfavorable for the development of an abscess. In the rare case of its occurrence, patient may experience compromise in various glossal functions.

Pain, dysphagia, difficulty in tongue protrusion and speech, odynophagia, and occasionally respiratory distress accompany a tongue abscess. Diagnosis can generally be made based on the clinical presentation and history. Sometimes, the classical signs of odynophagia, difficulty in speech, tongue protrusion and dribbling of saliva² may not be present; however, the clinician must always consider it as a differential diagnosis in the case of a lingual swelling, especially when the host appears to have an impaired immune status.³

CASE REPORT

A 30-year-old female patient consulted the Department of Oral Medicine and Radiology with the complaint of asymptomatic swelling in the left back tongue region since 2 months. Patient had a history of tooth ache in the lower left back jaw region, shortly after which, she developed the swelling. She also had a history of repeated trauma to the tongue due to decayed jagged tooth. She consulted a private ENT specialist for the swelling and was prescribed the following medications (metronidazole 400 mg, ornidazole 500 + levofloxacin 250 mg, ibuprofen 400 + paracetamol 500 mg) for 3 days. The patient had no relief with the same. A few days later, the patient consulted a private hospital where she got her offending painful tooth extracted; following which, she took a course of the following prescribed drugs for 5 days: Ornidanazole 500 + ofloxacin 200 mg, metronidazole 400 mg, aceclofenac 100 mg. The medications on both occasions were prescribed in standard regimen. Since the patient had no remission in the tongue swelling, she elected to come to our institution for further treatment.

Intraoral examination of the patient revealed a well-defined, globular swelling in the left lateral border of the tongue in the premolar-molar region (Figs 1A and B). Swelling was about $2 \times 2 \times 1.5$ cm in size extending predominantly onto the dorsal surface and about 0.5 cm onto the ventral surface. The swelling was firm on palpation with no associated tenderness. The overlying mucosa appeared intact with no evidence of pus discharge or punctum. Transillumination test yielded a negative result. There was no history of associated fever or pain. Submandibular and submental lymph nodes were impalpable. Except for a slight discomfort in speech, the patient had no history of symptoms of odynophagia or dysphagia. At the time of examination, lower left first molar was missing and lower left third molar was grossly

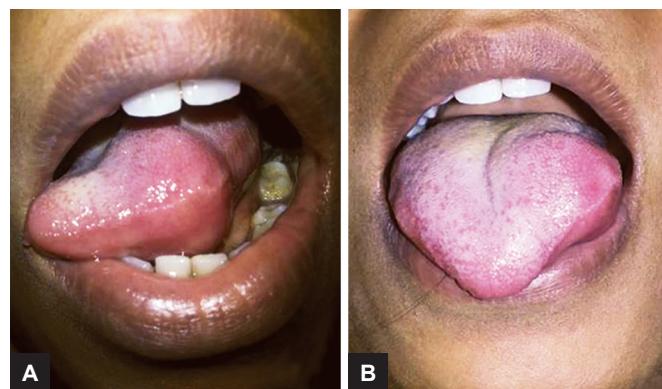
^{1,5,6}MDS Student, ²Professor and Head, ³Associate Professor
⁴Assistant Professor

¹⁻⁶Department of Oral Medicine and Radiology, Nair Hospital Dental College, Mumbai, Maharashtra, India

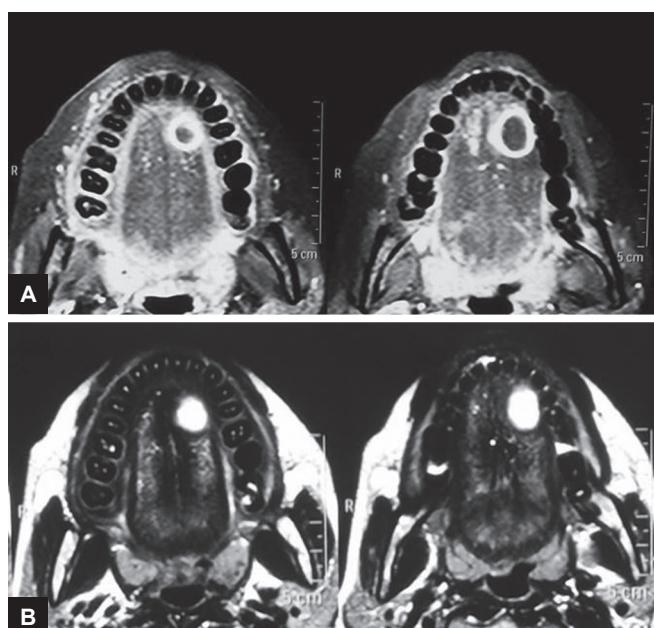
Corresponding Author: Isha Mishra, MDS Student, Department of Oral Medicine and Radiology, Nair Hospital Dental College Mumbai, Maharashtra, India, Phone: +919819983304, e-mail: eisha.mishra@gmail.com



Figs 1A and B:



Figs 2A and B:



Figs 3A and B:

carious. The medical history provided by the patient did not add to much to diagnostic information. Patient was neither immunocompromised nor gave any history of tuberculosis. Based on the clinical findings, a working diagnosis of benign tumor of the tongue was made and fibroma was considered as a differential diagnosis. Since the nature of the swelling was not discernible, an ultrasonography (USG) was advised.

Ultrasonography findings indicated an abscess of 1.6×1.1 cm, which was thick walled and hypoechoic, possessing debris but no vascularity internally. Peripheral vascularity and posterior acoustic enhancement were noted. Absence of history of pain and fever was conflicting to the diagnosis of an abscess. A differential diagnosis of cyst was considered. Since a confirmatory diagnosis could not be arrived upon, a magnetic resonance imaging (MRI) was advised.

Magnetic resonance imaging of the tongue revealed a fairly well-defined, ovoid-shaped, unilocular cystic lesion involving substance and bulging the left lateral

border of anterior aspect of the anterior two-third of the tongue. It measured about $1.9 \text{ (AP)} \times 1.5 \text{ (W)}$ cm in maximum transverse dimension and 2.2 cm in its superoinferior extent. The core of the lesion appeared to be homogeneously hyperintense on short-tau inversion recovery (STIR) and T2-weighted images surrounded by 2 to 3 mm thick, minimally irregular T2 iso-hyperintense wall. The core of the lesion showed restricted diffusivity, appearing hyperintense on diffusion weighted (DW) images and hypointense on apparent diffusion coefficient (ADC) images with wall showing free diffusivity. Lesion appeared to be homogeneously hypointense to tongue muscles on unenhanced T1-weighted images surrounded by isointense wall and thick continuous intense wall enhancement with no enhancement of the core. No enhancing mural nodule or septations were seen. No intralesional calcification hemorrhages or fluid-filled levels were noted. No perilesional T2 or STIR hyperintense edema was seen in the surrounding tissue (Figs 2A and B). Based on the imaging findings, the diagnosis of an abscess was made.

In the interim that the patient was sent for MRI, she consulted a private dentist for extraction of her decayed right mandibular molars. Patient was advised warm saline rinses from the next day. When patient reported to us with the MRI scan, the swelling had reduced in size and pus discharge was apparent from the inferior aspect. This conformed to the radiographic diagnosis of abscess. Keeping that in view, an incision and drainage was performed under local anesthesia. The procedure was uneventful and, at completion, the swelling had reduced considerably. There was complete resolution of the swelling with only slight residual induration evident at the 1-month follow-up (Figs 3A and B).

REVIEW OF LITERATURE WITH DISCUSSION

Tongue is an important organ of the oral cavity aiding in various functions, such as chewing, swallowing, and speech. Abscesses in the anterior portion generally cause

discomfort to the patient and pose difficulty in speech. Abscesses in the base of the tongue can lead to complication in swallowing and may also cause acute respiratory distress.

In spite of being constantly subjected to pathogen exposure and trauma, it is relatively immune to infections. The constant mobility of tongue allows the saliva to create a perpetual cleansing effect. The heavy keratinization of the tongue mucosa and heavy musculature prevents the invasion of microbes. Its rich vascular and lymphatic supply, along with the immunologic properties of saliva, renders it unlikely to develop an abscess.⁴ Breach in the continuity of the mucosa and immunodeficiency states predispose to the development of a tongue abscess.⁵

The first reported case of tongue abscess was in 1923.⁶ Over the past 40 years, approximately 70 cases of glossal abscess have been reported in the English literature.^{3,7-10}

The usual symptom with which the patient presents is acute and tender swelling of the tongue. It may develop within hours or days. Pain radiates toward the ear generally and patient may refrain from conscious movement of the tongue. Odynophagia, pain, and fever are generally present. Dysphagia and dyspnea are the alarm symptoms that the lesion should be decompressed urgently and that airway maintenance is necessary.²

In this case, the swelling appeared to be quite firm and muscular. With the exception of discomfort during speech, no classic symptom of an abscess was evident. Repeated administration of antibiotics led to no improvement in the swelling. For an abscess, it is reasonable to assume that antibiotics would lead to reduction, if not complete resolution, in its size. Patient also gave no history of any immunodeficiency state. Therefore, except for repeated trauma due to carious lower left first molar, no other history was contributory toward the diagnosis of a tongue abscess.

Several imaging techniques, including sonography, computed tomography (CT), and MRI, can be used to evaluate tongue swellings. The tongue abscess has been reported as appearing as a hypoechoic lesion with a hyper-echoic ring on USG. The findings were quite similar in our case. However, USG poses certain drawbacks. The anterior portion of the tongue and oropharynx may not be clearly discernible due to interposition of air. Operator dependence is another drawback of sonography, and anatomic landmarks are not precise.⁵ Therefore, a conclusive diagnosis of an abscess could not be made based on USG alone.

Magnetic resonance imaging clearly reveals the anatomy of the oral cavity with excellent soft-tissue detail and multiplanar capability. Therefore, it is a better suited modality to scan the tissues of the floor of the mouth and tongue. Computed tomography scan could be useful,

but beam hardening artifacts and amalgam artifacts may obscure the images. Better soft-tissue detailing in comparison to CT with no radiation exposure led us to favor MRI as the choice of imaging technique.

Typical presentation of an abscess on MRI is of a T1 hyperintense–T2 hypointense rim that enhances diffusely after contrast injection surrounding a T1 hypointense–T2 hyperintense lesion. The target sign and edema pattern are ancillary findings that suggest the diagnosis of abscess, but an abscess may also present as a masslike lesion that enhances diffusely or peripherally.⁵ Although, perilesional edema was not noted, the findings on T1- and T2-weighted images were consistent with the typical appearance of abscess. Also, it helped rule out the possibility of a cystic lesion, which usually shows a T2-hyperintense mass with a thin rim of peripheral enhancement and no internal enhancement. Homogeneous or heterogeneous low-signal-intensity internal echoes are noted in abscesses. These lesions do not show deep enhancement, and they may have thick or irregular walls,¹¹ as was evident in our case. Pus discharge noted on the follow-up visit confirmed the diagnosis of tongue abscess. Thus, MRI proved to be an invaluable tool, leading to a diagnosis that was not considered earlier.

CONCLUSION

Although, diagnosis of a glossal abscess can be made on clinical findings alone, certain cases do not present with the usual signs and symptoms. It is for the clinician to consider it as a differential and obtain a detailed history. Advising appropriate tests to reach a correct diagnosis is also critical in patient management. Magnetic resonance imaging is an extremely useful tool in diagnosing a tongue abscess and was crucial in this particular case.

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