Tongue Abscess Mimicking Neoplasia

SUMMARY: Tongue abscess is a very rare condition about which only sparse imaging findings have been reported. In 2 patients, a submucosal malignant tumor was suspected because of the presence of a painful hard tongue mass with intact mucosal surface. Differential diagnosis of the tongue abscess or malignancy was difficult on MR imaging or positron emission tomography-CT. In careful retrospective history taking, the symptoms had dated from an episode of eating fish several months before presentation. Plain radiographs and noncontrast CT images of the pharynx revealed a foreign body within the lesion. Thus, we present the imaging findings of 2 cases of malignancy mimicking tongue abscess as a result of impaction of a fish bone.

Case Reports

Case 1
A 52-year-old woman was admitted with a painful mass found incidentally on the tongue. On physical examination, a 3-cm diameter hard mass was found at the right dorsum of the tongue, and a tongue malignancy was suspected. To rule out a malignant mass, oropharynx MR imaging was performed. An axial T2-weighted MR image revealed mixed signal intensities at the right posterior tongue (Fig 1A). An axial T1-weighted MR image demonstrated hypointensity of the lesion. An axial Gd-enhanced T1-weighted MR image showed relatively well-margined, inhomogeneous, target-like enhancement of the lesion (Fig 1B). In retrospect, the symptoms had dated from an episode of eating fish 5 months before. For evaluation of the fish bone, a noncontrast CT image of the pharynx was obtained and revealed a subtle dot-like hyperattenuation within the lesion (Fig 1C). Plain radiograph of the tongue demonstrated a linear radiopaque foreign body within the tongue (Fig 1D). An 11-mm long fish bone with pus was removed surgically. Follow-up MR images revealed decreased size of the inflammatory mass. The patient had no further symptoms after removal of the fish bone and treatment with antibiotics.

Case 2
A 58-year-old man complained of a mass and of tenderness in the right tongue of 4 months’ duration. The symptoms decreased with antibiotic treatment; however, they recurred twice. On physical examination, a 3-cm diameter hard mass was palpable in the middle of the tongue, and a tongue malignancy was suspected. Oropharynx MR images were obtained. T2-weighted images (Fig 2A) revealed subtle ill-defined hyperintensity to the right of the middle of the tongue. T1-weighted revealed hypointensity of the lesion. Gd-enhanced T1-weighted images (Fig 2B) showed a 4 × 1.6-cm, vertically ovoid, target-like enhancement. To rule out a tongue malignancy, a PET-CT scan was obtained. There was a high glucose metabolic focal lesion in the right of the middle of the tongue (standard uptake value, 7.4) (Fig 2C) supporting a malignant tumor. On physical examination and PET-CT findings, a tongue malignancy was suspected. However, an abscess could also not be ruled out on the MR images. In retrospect, the symptoms had dated from an episode of eating fish 4 months previously. To find the fish bone, a noncontrast pharynx CT scan was obtained. A faint dot of hyperattenuation was revealed within the lesion (Fig 2D). A 6-mm long fish bone with pus was removed surgically. Follow-up MR images revealed a decrease of the mass size. The patient had no symptoms after surgery and antibiotic treatment.

Discussion
Although the tongue is subject to constant trauma, inflammatory conditions resulting from acute trauma are rare, probably because of the tongue’s rich blood supply, unique muscular
Fig 2. T2-weighted MR image (A) demonstrates subtle and ill-defined hyperintensity to the right of the middle of the tongue. Gd-enhanced T1-weighted MR image (B) reveals a 4 × 1.6-cm, vertically ovoid, target-like enhancement. The PET-CT image (C) demonstrates a hypermetabolic lesion in the right tongue with a measured peak SUV of 7.4. Noncontrast axial (D) and sagittal reformatted (E) CT images show a small foreign body (arrow) within the slightly hyperattenuated lesion of the anterior tongue.

anatomy, the thickness of the covering mucous membrane, and the cleansing action of saliva. Tongue infection is the result of the interaction between the compromised local or systemic defense and pathogenic microorganisms. The first line of defense against an invading microorganism is the mechanical barrier of the tongue mucosa. Once this first line of defense is breached and the host immune system is compromised, tongue infection can be severe and recalcitrant.

The differential diagnosis of tongue abscess includes a number of diseases that may appear as lingual swelling such as tumor, cyst, infarction, edema, infection, hemorrhage, metaplastic activity, such as fluoro-2-deoxy-D-glucose, will be able to differentiate tumor from inflammation with complete accuracy; this will be possible only with tumor-specific markers or with significantly improved quantitative methods.

Conclusion Lingual abscess due to fish bone impaction is rare. We experienced 2 cases of fish bone-induced tongue abscess that were clinically suspected of being malignancies. MR or PET-CT images may confuse diagnosis. With history of fish bone impaction, the finding of a foreign body on plain radiographs or CT images may help in determining the differential diagnosis.

References