Nodular swelling of the tongue

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CLINICAL PRESENTATION
A 44-year-old woman was referred for evaluation of an asymptomatic lesion located on the left lateral border of the tongue and measuring \(17 \times 10\) mm (Figure 1). She mentioned that it has been present for about 4 years. Clinical examination found a circumscribed elongated soft nodular swelling with a speckled, irregular surface showing small, whitish papillary projections. The base and limits of the nodule were not indurated. Her medical history was noncontributory.

DIFFERENTIAL DIAGNOSIS
Based on the clinical features, differential diagnoses were focused on benign papillary superficial and nodular submucosal lesions that might affect the tongue.

Considering nodular submucosal mesenchymal lesions, granular cell tumor was favored initially. It is a benign neoplasm with a suspected neural origin that shows a predilection for women in their fourth to sixth decade of life. It often appears as a solitary yellowish nontender nodular swelling covered by normal mucosa. The most common intraoral location is dorsal tongue, followed by buccal mucosa. In present case, changes in the surface of the lesion, lack of clear delimitation, and localization on the lateral border of the tongue argue against granular cell tumor.

Because of the discrete papillary surface, verruciform xanthoma (VX) was considered. This is a superficial lesion of unclear etiology that results from the accumulation of foamy macrophages in the connective tissue papillae and has a sessile papillary appearance. This lesion has a slight male predilection, and it occurs over a wide age range, peaking in the fifth and sixth decades of life, usually affecting the alveolar ridge, gingiva, and palate, followed by buccal mucosa, tongue, and floor of the mouth. Depending on the degree of surface keratinization and the number of lipid-laden macrophages in the connective tissue papillae, surface color can vary from red or pink as normal oral mucosa to white or yellowish.

Other papillary entities included in the differential diagnosis were oral condylomata and verrucous hyperplasia (VH). The former is a benign papillary lesion of viral etiology, usually affecting the skin or mucosa of the anogenital region and oral cavity. Oral condylomata are more often observed in men in their third or fourth decades of life and commonly involve the labial mucosa, tongue, and floor of the mouth. Oral VH is considered a precancerous lesion that may transform into either a verrucous carcinoma or squamous cell carcinoma. Clinically, oral VH presents as a whitish or pink plaque or mass with verrucous or papillary surface, with a predilection for men between 40 and 69 years old, and usually affects the buccal mucosa, followed by the tongue, palate, and gingiva.

Neurofibroma, schwannoma, and perineurioma are benign peripheral nerve sheath tumors that can have the clinical appearance of a submucosal tongue nodule. Approximately half of these tumors occur in the head and neck region. Tongue is the most common location in the oral cavity, mainly dorsal and ventral surface, followed by buccal mucosa, palate, floor of the mouth, and lip. Young women are preferentially affected. An asymptomatic nodular swelling is the most common presentation, although symptoms such as pain or paresthesia may also be present.

Solitary circumscribed neuroma (SCN, or palisaded encapsulated neuroma) and traumatic (amputation) neuroma are regarded as reactive, hyperplastic processes that can also present as submucosal lingual nodules. Clinically, SCN appears as a small nodule and is most often painless, usually affecting adult men. The most common locations are the palate and gingiva, followed by the lip, tongue, and buccal mucosa. The pathogenesis of SCN remains a matter of debate. Traumatic neuroma is a non-neoplastic proliferation of neural tissue occurring in response to an injury or surgical procedure. Clinically, it appears as a nodule, occasionally tender or painful on palpation. The most common oral locations...
are the lip, tongue, and mental nerve area. In the present case, the location of the lesion on the lateral tongue supported a diagnosis of traumatic neuroma.

Lymphoproliferative disorders can eventually involve the tongue, with a spectrum of lesions varying from reactive/benign entities to overt lymphoma. Considering the former, follicular lymphoid hyperplasia clinically appears as a firm, nonulcerated, slow-growing mass affecting mainly the palate. When the tongue is affected, this lesion usually appears as an irregular enlargement with a whitish or erythematous surface. Female patients are 3 to 4 times more frequently affected, with an age range of 36 to 79 years.

Other diseases with oral manifestations similar to this case include fungal and bacterial infections such as paracoccidioidomycosis and syphilis, respectively. Paracoccidioidomycosis is endemic in South America, particularly in certain states of Brazil, including São Paulo, and it is commonly seen in our service. This fungal infection can disseminate from lungs to the oral cavity, showing a wide spectrum of clinical presentations. Typical features include a speckled finely granular hyperplasia, with hemorrhagic points and a mulberry-like surface. Unlike in the present case, it generally affects multiple sites, ulceration is common, and it is almost exclusively a disease of men. Single lesions have been described, although they are uncommon. Oral cavity is the most common extra-genital site of infection of syphilis; the diagnosis is based on clinical, histopathologic, and serologic examinations.

Finally, a less common condition included is amyloidosis, which involves a group of disorders characterized by extracellular deposition of insoluble amyloid fibrils within tissues. The deposition pattern of amyloid can be either localized or systemic. The most common form of systemic disease is light chain amyloidosis. Involvement of the tongue is almost always secondary to systemic amyloidosis, and it can occur in up to 40% of cases. Amyloidosis in the head and neck affects usually adult women.

The entities included here as differential diagnoses could not be ruled out clinically, so under local anesthesia an excisional biopsy specimen was taken. Because the patient was an otherwise healthy woman with a long-standing, asymptomatic lesion, a malignant condition was highly unlikely; thus, a benign condition was favored.

**DIAGNOSIS**

Histopathologic study revealed a hyperplastic, hyper-parakeratinized, stratified squamous epithelium of variable thickness and surface papillomatous projections (Figure 2). The epithelium exhibited mild cellular atypia with atrophic areas mixed with elongated hyperplastic epithelial processes (Figure 3A). The underlying stroma had a dense chronic inflammatory infiltrate. Lymphocytes and plasma cells were concentrated in a subepithelial bandlike pattern, even forming secondary lymphoid follicles with germinal centers (Figure 3B). Intraepithelial collections of lymphocytes, polymorphonuclear leucocytes, and cellular debris were found in the superior layers of the epithelium.
Periodic acid–Schiff (PAS) staining revealed abundant fungal hyphae invading through the epithelium (Figure 4B). Based on the clinical and histopathologic findings, the final diagnosis was chronic hyperplastic candidiasis (CHC), nodular type.

**MANAGEMENT**

Because the patient underwent an excisional biopsy and the surgical site healed satisfactorily, no additional treatment was necessary. After 6 months of follow-up, no residual lesion was detected. She recovered well, without complaints, and tongue mobility was within normal limits. A careful systemic evaluation, including laboratory tests, did not reveal immune deficiency or any other alteration. Because she was not taking any drug and had no referring symptoms such as dry mouth or burning sensation, we thought that initial biting trauma compounded by emotional stress or hormonal imbalance, this being a relatively young woman, might be the cause of this condition. There were no lesions involving other mucosal or cutaneous sites. Good oral hygiene in the present case appeared to be of extreme value, helping to avoid recurrence. In this case, as mentioned earlier, antifungal therapy was not necessary because of the fact that the site of injury had normal-appearing mucosa after excisional biopsy; thus, surgical removal of the whole lesion appeared to be sufficient.

**DISCUSSION**

Chronic hyperplastic candidiasis is a rare variant of oral candidiasis, defined as a white plaquelike lesion that cannot be rubbed off, presenting clinically as a raised well-demarcated lesion in the buccal mucosa, posterior to the commissural region. The surface has a homogeneous whitish appearance, but sometimes it can be mixed with erythematous areas. Interestingly, the nodular type is a rare form of CHC. Histopathologic features of CHC may vary according to the clinical presentation, though the nodular type has important variations in the thickness of the epithelium. There is evidence that candidal infection may provoke a hyperplastic response, forming raised lesions; this event depends on the virulence of the *Candida* species. The histopathologic features of the present case are similar.
to that reported in the literature as nodular or pseudo-tumoral subtypes of CHC, with variations in the thickness of the epithelium, parakeratosis, hyperplasia of the rete ridges, and collections of polymorphonuclear leucocytes in the superficial layers of the epithelium, forming microabscesses associated with areas where abundant hyphae were invading.\textsuperscript{13,14}

Chronic hyperplastic candidiasis can mimic malignant or premalignant entities because of the white plaquelike appearance and that it cannot be rubbed off. Exfoliative cytologic examination is a minimally invasive technique for obtaining oral cell specimens; it can be indicated when there is clinical suspicion of CHC. If a surgical specimen is evaluated, the histopathologic analysis indicates that the epithelium in CHC is invaded by \textit{Candida} hyphae, but it is unclear whether this fungal infection is secondary or is causally involved in the development of CHC.\textsuperscript{14,15} In these cases, epithelial cellular changes can occur, varying from hyperplasia to dysplasia. Exfoliative cytologic or histopathologic examination is required for the diagnosis, along with special stains such as PAS or Grocott-Gomori to better identify the hyphae. In the present case, after the histopathologic examination, which revealed the fungal hyphae, a diagnosis of CHC, nodular type, was made. Thus, although CHC, nodular type, is an uncommon lesion, it should be considered in the differential diagnosis of an oral chronic swelling, avoiding misdiagnosis and inappropriate treatment.

The distinction between "reactive" cytologic atypia in response to candidal infection and inflammation from overt dysplasia with malignant potential is difficult. A minority of patients may be predisposed to CHC because of smoking, iron and folate deficiencies, defective cell-mediated immunity, blood group status, antibiotic therapy, corticosteroid therapy, xerostomia, diabetes mellitus, HIV/AIDS, chemotherapy/radiation therapy, poor oral hygiene, drugs, dentures, high-carbohydrate diet, or Cushing syndrome. The prognosis is good in the great majority of cases. It has been mentioned that poor diet, emotional stress, or high levels of estrogen could promote the fungal infection. Because the patient in the present case was a young woman, some of these factors could have been involved as causal factors of this rare type of oral candidiasis.\textsuperscript{13}

In conclusion, there is likely a multifactorial cause for some patients with oral CHC who lack local or systemic predisposing factors. These predisposing factors may include specific fungal pathogenicity, qualitative defects in immune response attributable to genetic variations, and local microenvironment with suitable substrate (e.g., epithelium exhibiting hyperplasia and keratosis) for fungal proliferation.

**REFERENCES**


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