

Clinicopathologic and immunohistochemical features of five new cases of solitary fibrous tumor of the oral cavity



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Objective. To describe the clinicopathologic and immunohistochemical features of five cases of oral solitary fibrous tumor.

Study Design. Clinical data were collected from charts of two oral pathology laboratories of Latin America. All cases were evaluated by conventional hematoxylin and eosin staining and an extended immunohistochemical panel comprising vimentin, CD34, CD99, bcl-2, HHF-35, smooth muscle actin, calponin, S-100 protein, h-caldesmon, and Ki-67.

Results. The study included 1 male (20%) and 4 female (80%) patients, with a median age of 43 years. The most common affected site was the buccal mucosa (40%). Tumors were characterized by proliferation of spindle and ovoid cells in a variably vascular and collagenized stroma. All tumors were positive for vimentin, CD34, bcl-2, and CD99. Recurrence was not observed after complete surgical enucleation.

Conclusions. Oral solitary fibrous tumors usually appear as well-delimited submucous nodules with a firm-rubbery consistency and covered by intact mucosa. Immunoreactivity for CD34, bcl-2, and CD-99 is helpful to confirm the diagnosis. (Oral Surg Oral Med Oral Pathol Oral Radiol 2016;121:390-395)

Solitary fibrous tumor (SFT) is a relatively uncommon benign mesenchymal neoplasm of uncertain origin.¹⁻³ First described in the pleura by Klemperer and Rabin in 1931, SFT has been recently described in different extrapleural sites, including the oral cavity.¹⁻⁷

Oral SFT preferably affects the buccal mucosa and tongue of female patients in the sixth decade of life.⁸⁻¹² Clinically, it is a slow-growing, painless, well-defined submucosal mass of variable size.¹³⁻¹⁵ Microscopically, SFT exhibits a variably collagenized stroma containing benign-looking, spindle-shaped tumor cells, with occasional nuclei showing mild nuclear atypia. Focal areas of dense hyalinization and characteristic staghorn-shaped blood vessels are consistently present. The tumor cells are immunopositive for CD34, bcl-2, and CD99.^{8,15}

To the best of our knowledge, approximately 85 cases of SFT of the oral cavity have been reported in the English language literature so far, mostly case reports and a few rare case series.^{4,8,12,15} The objective of this study was to report five new cases from two oral pathology laboratories in Brazil and Guatemala.

MATERIALS AND METHODS

Five cases of oral SFT were retrieved from the files of two Latin-American oral pathology laboratories: Federal University of Rio de Janeiro, Brazil (3 cases), and Centro Clínico de Cabeza y Cuello, Guatemala (2 cases). All clinical data, including gender, age, anatomic site, clinical presentation, and follow-up, were recorded. The diagnosis of oral SFT was initially rendered on the basis of the morphologic features of the lesions, in routine hematoxylin and eosin (H&E)-stained sections. All initial diagnoses were confirmed by immunohistochemical analyses. For this, 3- μ m thick sections mounted on silane-coated glass slides were deparaffinized and rehydrated in graded ethanol solutions. After antigen retrieval in a pressure cooker with citrate buffer (pH 6.0), endogenous peroxidase activity was blocked with 20% hydrogen peroxide (H₂O₂), using five cycles of 5 minutes each. The primary antibodies used in each of the lesions included vimentin (Vim 3 B4; 1:400; Dako, Glostrup, Denmark), CD34 (QBEnd10; 1:50; Dako), CD99 (12 E7; 1:100; Dako), bcl-2 (124; 1:50; Dako), Ki-67 (MIB-1; 1:100; Dako), actin (HHF-35; 1:800; Dako), smooth muscle actin (1 A4; 1:400; Dako), calponin

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Statement of Clinical Relevance

Our study contributes five new cases of intraoral solitary fibrous tumor from Latin America, the largest series in the region. Solitary fibrous tumors rarely occur in the floor of the mouth; We present an additional case in this location, the third to be described.

Table I. Clinicopathologic features of five cases of solitary fibrous tumor of the oral cavity

<i>N</i>	<i>Age, gender</i>	<i>Country</i>	<i>Site</i>	<i>Clinical features</i>	<i>Microscopic pattern</i>	<i>Recurrence, follow-up</i>
1	70 F	Brazil	Floor of the mouth	Well-circumscribed pedunculated nodule measuring 4 cm, with superficial collateral capillaries	Classic	No, 2 years
2	56 F	Brazil	Upper lip	Well-circumscribed nodule with normal coloration, measuring 1.5 cm	Myxoid	No, 6 months
3	35 F	Brazil	Buccal mucosa	Well-circumscribed nodule with normal coloration, 1 cm diameter	Hypercellular	No, 1 year
4	14 M	Guatemala	Anterior upper vestibule	Well-circumscribed nodule measuring 2 cm	Classic	No, 7 years
5	43 F	Guatemala	Buccal mucosa	Well-circumscribed nodule measuring 3 cm, with superficial ulceration	Classic	No, 10 years

F, Female; M, male.

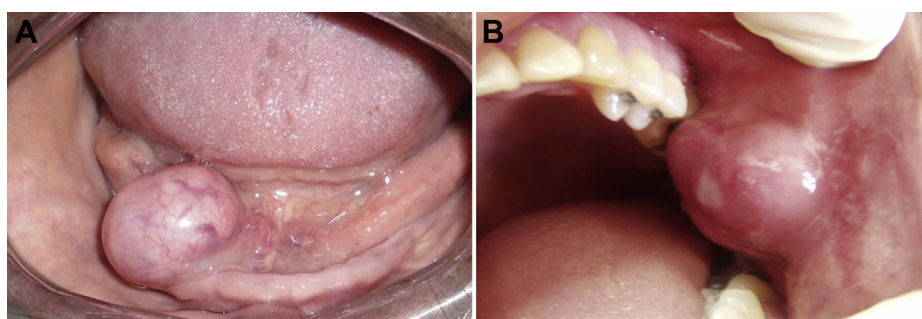


Fig. 1. Clinical features of solitary fibrous tumor of the oral cavity. **A**, Well-circumscribed pedunculated nodule with superficial telangiectatic vessels in the floor of the mouth, positioned on the alveolar ridge (case 1). **B**, Well-defined nodule with secondary ulceration in the buccal mucosa (case 5).

(CALP; 1:600; Dako), caldesmon (h-CD; 1:400; Dako), and S-100 protein (polyclonal; 1:10.000; Dako). Overnight incubation with the primary antibodies diluted in bovine serum albumin was followed by incubation with the secondary antibody conjugated with polymer dextran marked with peroxidase (Dako EnVision Labeled Polymer; Dako). Reactions were developed with a solution containing 0.6 mg/mL 3,3'-diaminobenzidine tetrahydrochloride (DAB, Sigma, St. Louis, MO) and 0.01% H₂O₂, and counterstained with Carazzi's hematoxylin. Positive control sections were used for each antibody (fibrous hyperplasia for vimentin, CD34, HHF-35, smooth muscle actin, calponin, S-100 protein, and h-caldesmon; lymph node for CD99 and bcl-2; and oral squamous cell carcinoma for Ki-67), and a negative control was obtained by omitting the primary specific antibody. A descriptive analysis of the morphologic and immunohistochemical findings and features are described and discussed in the present study. The number of mitotic figures was assessed in 10 high-power fields (×400) of each slide. The labeling index for Ki-67 was defined taking into consideration the percentage of cells expressing nuclear

positivity out of the total number of cells, counting 1000 cells per slide with a minimum of 10 high-power fields (×400).

RESULTS

The clinicopathologic findings of five cases of oral SFT are summarized in Table I. The study included 1 male (20%) and 4 female (80%) patients, with a mean age of 43 years (range 14-70 years). Clinically, the lesions were single, asymptomatic, and covered by intact, normal-colored mucosa. On palpation, all lesions were well circumscribed, with a firm elastic consistency. In two cases, the lesions were located in the buccal mucosa (40%), upper lip (20%), upper vestibule (20%), and floor of the mouth (20%). The last was the only lesion presenting as a pedunculated nodule, with a superficial collateral capillary framework (Figure 1). Prior history of trauma with secondary superficial ulceration was documented for two cases. In the differential diagnoses, lipoma and neurofibroma were clinically ruled out on the basis of firm consistency and well-defined limits, respectively. The main probable diagnoses included

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