Clinical, histological, and immunohistochemical features of a mandibular metastasis from a primary cardiac angiosarcoma

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Primary cardiac angiosarcoma is an extremely rare malignant tumor. Distant metastases are common at the time of diagnosis but have never been reported in the jaw. A 45-year-old female patient with primary cardiac angiosarcoma was referred for dental care due to pain in the mandibular alveolar ridge. Oral examination revealed a red-violet lesion that was soft on palpation and had been present for 3 months. Histological analysis confirmed the diagnosis of metastatic cardiac angiosarcoma. The patient died of multiple metastases. (Oral Surg Oral Med Oral Pathol Oral Radiol 2013;116:e121-e127)

Angiosarcomas are aggressive malignant neoplasms composed of endothelial cells of vascular or lymphatic origin.[1] They represent approximately 3.6% of sarcomas and have a poor prognosis due to high rates of local recurrence and distant dissemination.[2] Most of these tumors arise spontaneously, although malignant transformation of preexisting benign or intermediate vascular lesions has been reported.[2,3] Well-established predisposing conditions include radiation exposure; chronic lymphedema; exposure to toxic substances, such as vinyl chloride; and immunosuppression.[4-7]

Angiosarcomas usually present as sporadic cutaneous lesions, typically in the head and neck region of elderly patients, although they can arise in any anatomical site, including deep soft tissue, breast, visceral organs, and bone.[8]

Despite being composed of endothelial cells, primary angiosarcomas of the heart are very rare, and in approximately 66%-89% of cases, metastases of cardiac lesions are usually detected at the time of diagnosis. The tumor disseminates primarily by the hematogenous route, and the most affected anatomical sites are the lungs, mediastinal lymph nodes, vertebra, and liver.[9,10] Other metastatic sites that have been reported include brain, bladder, spleen, adrenal glands, pleura, diaphragm, kidneys, thyroid, and skin. To the best of our knowledge, metastasis of cardiac angiosarcomas to the oral cavity has never been reported, and only the abstract of the present case is currently available.[11]

In this case report, the clinical, histological, and immunohistochemical features of a metastasis of a cardiac angiosarcoma to the mandible of a 45-year-old patient are discussed.

CASE REPORT

A 45-year-old female patient was referred to the Stomatology Clinic of the Federal University of Ceará (UFC) because of complaints of pain in the left mandibular alveolar ridge. The past medical history revealed a primary angiosarcoma of the heart diagnosed one month prior to referral (Figure 1), with metastases to the lung and mediastinal lymph nodes. Because the cardiac lesion could not be resected, the patient was treated with palliative radiotherapy, comprising a total tumor dose of 4000 cGys in 16 fractions and adjuvant chemotherapy.

During review of medical history, the patient reported that her left mandibular first premolar had been extracted 3 months prior, due to mobility, and that this corresponded to the site of the pain.

An oral examination revealed a mass in the left mandibular alveolar ridge, extending from the canine to the premolars, which resembled granulation tissue, and was non-tender and slightly compressible. This mass was first observed 3 months prior (Figure 2). Periapical radiography exhibited a bone destruction pattern characterized by ill-defined lytic changes in the crestal bone region and in the periapical region of the

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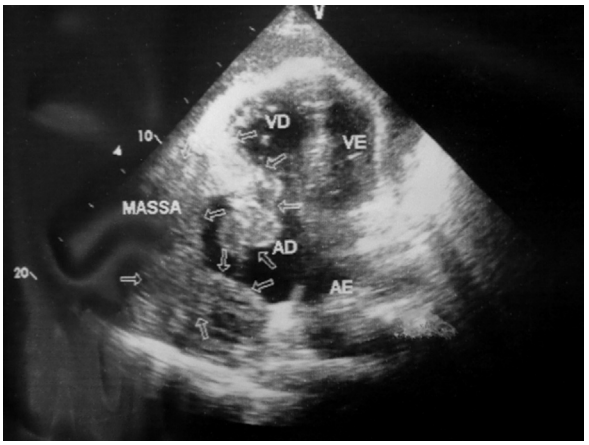

Fig. 1. Echocardiography showing an extensive cardiac lesion involving the right chambers.

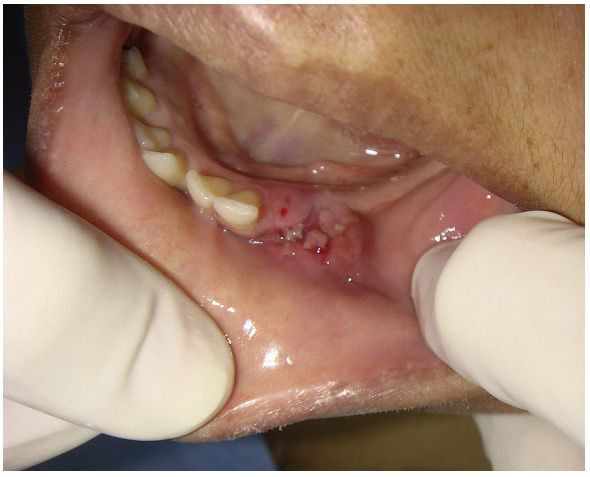

Fig. 2. An oral lesion similar to granulation tissue presenting areas of spontaneous bleeding.

mandibular left lateral incisor, which did not present mobility (Figure 3).

At the second appointment, the incisor closest to the lesion was extracted due to extensive mobility, and an incisional biopsy was performed. Histological analysis showed a lesion composed predominantly of granulation tissue with vascular neoformation and extensive necrosis (Figure 4). However, in an isolated fragment, it was possible to visualize a few wide and poorly defined vascular slits lined by pleomorphic and hyperchromatic spindle cells (Figure 5). Additionally, occasional mitotic figures were observed (Figure 6). The histological analysis of the incisional biopsy of the cardiac primary lesion showed similar features (Figures 7 and 8).

Considering her clinical history of cardiac angiosarcoma, an immunohistochemical panel similar to the panel of the cardiac lesion was performed (Table I). In the oral lesion, tumor cells were strongly positive for CD31 (Figure 9) and CD34 (Figure 10), demonstrating the existence of various vascular lumens throughout the lesion. Muscle-specific actin

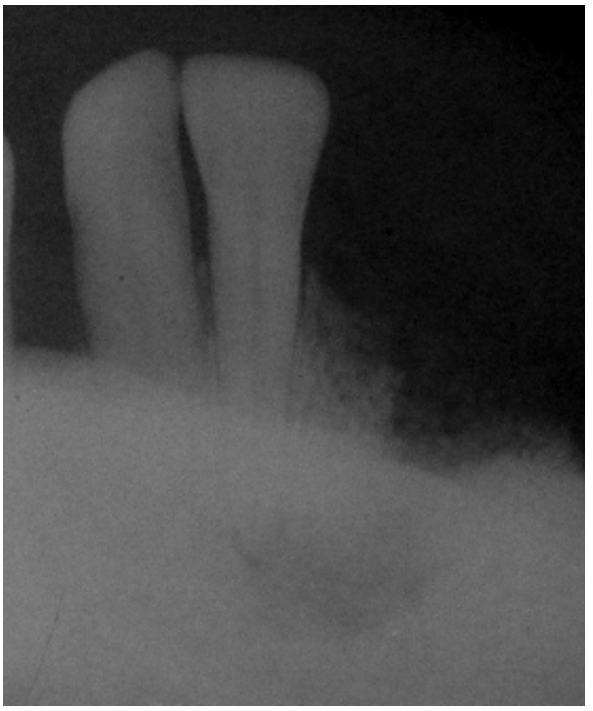

Fig. 3. Periapical radiography of the mandibular left incisors showing a bone destruction pattern characterized by ill-defined lytic changes in the periapical and crestal bone regions.

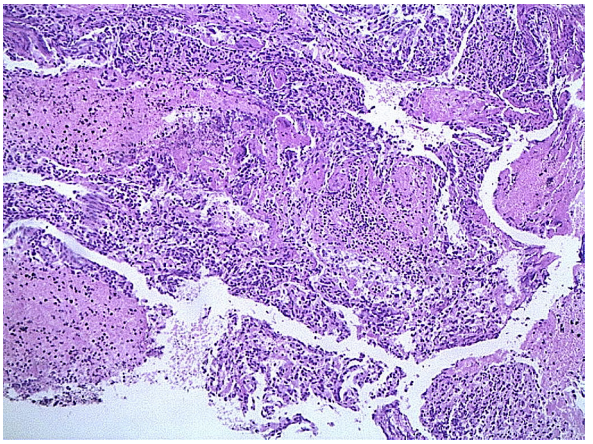

Fig. 4. Photomicrograph of the oral lesion demonstrating granulation tissue with vascular neoformation and areas of spindle cell proliferation with atypia (HE, original magnification $\times 100$).

expression was also observed in the vessels, particularly in the vascular walls. Additionally, focal expression of α-smooth muscle actin was observed, primarily in the perivascular region (Figure 11). Immunostaining for desmin, S-100 protein, HHV8, and AE1/AE3 was negative. Approximately 10% of cells expressed Ki-67 (Figure 12), and the diagnosis was compatible with secondary (metastatic) oral angiosarcoma.