Angiomyolipoma (AML) is a rare, benign tumor composed of thick-wall blood vessels, smooth muscle component and mature adipose tissue. Differentiation from other benign and malignant mesenchymal lesions of oral cavity depends on recognition of these three histologic components, and immunohistochemical (IHC) techniques are also helpful. This tumor arises from perivascular epithelioid cells (PEComas) and kidneys followed by liver are the main locations of this soft tissue tumor. AMLs are rarely found in oral cavity and few case reports of oral AML have been reported in the literature. We report the first case of concurrent occurrence of AML of the tongue and peripheral giant cell granuloma of the gingiva in a 59-year-old patient. Clinically it was presented as a painless nodular mass with a smooth surface on the dorsal of the tongue. Based on histopathologic features and IHC staining the diagnosis of oral AML was done. The other lesion was a small sessile mass in interdental papillae of the lower incisors and microscopic examination showed the histologic features of a peripheral giant cell granuloma. Concurrent occurrence of PGCG which is a reactive mucosal hyperplasia and AML in our patient, could show the probable role of local trauma in the pathogenesis of these lesions.

Keywords: Angiomyolipoma, Oral Cavity, Granuloma, Giant cell, Immunoreactivity, Case reports

Introduction

Angiomyolipoma (AML) is a rare mesenchymal neoplasm composed of variable amounts of blood vessels, smooth muscles and adipose tissue. About one third of patients with renal AML show the symptoms of tuberous sclerosis syndrome [1]. Kidney is the most common location of this tumor. Other extra renal sites also have been reported such as liver, abdomen, genital walls, heart, mediastinum, lung, skin, oral cavity, nasal cavity and nasopharynx [2]. Angiomyolipoma is known as a part of tumor family originated from perivascular epithelioid cells (PEComas). These tumors show positive immunoreactivity for both muscle and melanocytic markers. Among extrarenal sites of AML, liver is the second most common site. Hepatic angiomyolipoma in both positive HMB-45 immunoreactivity and association with tuberous sclerosis is similar to renal AML, but extrarenal lesions of other sites are usually not associated with tuberous sclerosis and do not show positive immunoreactivity for HBM-45 [3,4].

The peripheral giant cell granuloma is a relatively common tumorlike proliferation of oral cavity. It is not a true neoplasm but an unusual proliferative response of
oral mucosa to local irritation or trauma which occurs exclusively on the gingiva or edentulous alveolar ridge [5].

AML of the oral cavity is rare and after review literature we failed to find any concurrency between sporadic AML and other lesions in previous studies. In this article we present the first case of concurrent occurrence of AML of the tongue and peripheral giant cell granuloma of the gingiva after obtaining informed consent from the patient. However, due to absence of enough information about the exact etiology of AML, this finding can be incidental.

Case Presentation

A 59 old man was referred to oral medicine clinic at Kerman School of Dentistry by his dentist for the evaluation of two asymptomatic growths in his oral cavity. The first lesion was located on the dorsal surface of the tongue near the lateral border and the second one on the labial attached gingiva of the mandibular central incisors. On examination, the lesion of the tongue which had first appeared about one year ago, had a soft to rubbery consistency, with a smooth depapillated surface and pinkish red color. The shape of the lesion was nodular, measuring about 1×1 cm in size. At the top of the lesion, a small erosion was seen which was surrounded by a white keratotic area. On palpation, the lesion was non mobile, painless, and emplitable (Figure 1a). Aspiration of this lesion was negative. MRI of the tongue lesion showed a well-defined mass with high signal intensity in T2 sequence.

The second lesion which was first noticed by the patient about 8 months ago (four months after appearance of the tongue lesion), was a sessile mass with a purple color and smooth surface measuring about 0.8×0.8 cm in interdental papillae of the lower incisors (Figure 1b). The teeth were vital and showed no mobility. Patient’s oral hygiene was poor. Medical history revealed that the patient had been suffering from rheumatoid arthritis and hypertension. With a working diagnosis of a vascular lesion such as hemangioma for the tongue lesion and peripheral giant cell granuloma for the gingival lesion, both lesions were totally excised under local anesthesia.

Histopathologic features of the tongue lesion demonstrated a well-demarcated mass without a capsule under the overlying epithelium. The tumor was composed of an admixture of numerous variable-size blood vessels, aggregates of adipocytes and smooth muscle cells. Blood vessels had thickened-walls and were admixed with interlacing smooth muscle fascicles. There were no mitosis and cellular atypia. Small and large clusters of adipocytes were dispersed among smooth muscle component (Figure 2a, Figure 2b) Histologic examination of the lesion in the attached gingiva showed a proliferation of multinucleated giant cells within a cellular stroma composed of spindle-shaped and ovoid mesenchymal cells. There was no mitotic figure. Hemorrhage and hemosiderin deposits were found throughout the lesion. Histopathologic findings were typical of a peripheral giant cell granuloma (Figure 2c, Figure 2d).

For definite diagnosis of the tongue lesion the following antibodies were applied: Alpha smooth muscle actin (cone 1A4, dilution 1:40, Dako A/S, Denmark), CD34 (clone QBEnd 10, dilution 1:50, Dako A/S, Denmark), S-100 ((dilution 1: 10000, Dako A/S, Glostrup, Denmark)) and HMB-45(dilution1:200, Dako S/A, Denmark). Immunohistochemistry (IHC) results showed intense immunoreactivity for CD34, and smooth muscle actin and focal positivity for S-100 but HMB-45 was negative (Figure
Based on microscopic and IHC findings, the diagnosis of AML was confirmed for the lesion. There is no evidence of local recurrence of both lesions 12 months postoperatively.

**Figure 2a:** Histopathologic sections show well-circumscribed nodules with variable-sized blood vessels, smooth muscle bundles and adipose tissue at both (a) low magnification × 40 and (b) high magnification × 100 (Hematoxylin and Eosin staining).

**Figure 2b:** Histopathologic sections show well-circumscribed nodules with variable-sized blood vessels, smooth muscle bundles and adipose tissue at both (a) low magnification × 40 and (b) high magnification × 100 (Hematoxylin and Eosin staining).

**Discussion and Conclusions**

The present case is the first reported instance of concurrent occurrence of an AML and a PGCG in the oral cavity. AMLs are benign neoplasms of mesenchymal origin. There is a strong association between renal AML, pulmonary lymphangioleiomyomatosis and tuberous sclerosis syndrome [6]. But there is not any reported association between extrarenal AML and other lesions.

**Figure 2c:** Histopathologic sections show numerous multinucleated giant cells within a cellular stroma at both (c) low magnification × 100 and (d) high magnification × 400 (Hematoxylin and Eosin staining).

**Figure 2d:** Histopathologic sections show numerous multinucleated giant cells within a cellular stroma at high magnification × 400 (Hematoxylin and Eosin staining).

**Figure 3a:** Vascular component shows immunoreactivity for CD34 (magnification ×100).
Figure 3b: Smooth muscle component shows immunoreactivity to SMA (magnification ×100).

Angiomyolipoma is extremely rare in the oral cavity. To our knowledge, only 18 cases of angiomyolipoma have been reported in oral cavity till now; 6 cases in lower and upper lips, 6 cases in tongue, 5 cases on the palate and 1 in cheek [4,7,8]. A well circumscribed mass with no invasion is the most common clinical appearance. However, the difference in the percentage of tissue components, make a difference in elasticity or color of the lesion [8]. Besides the present of three main components of the tumor in microscopic features, IHC staining has a very important role in diagnosis of oral AML. The smooth muscle cells of renal and liver AML differ from normal smooth muscle cells in that they react with the HMB-45 antibody. Because no HMB-45 positive immunoreactivity is found in head and neck tumors, this antibody is useful in diagnosis of AML of these sites [8]. The present case was positive for CD-34 and SMA, focally positive for S-100 and was negative for HMB-45. Our results agree with positivity described for SMA and negativity for HMB-45 in other cases of oral AML [1,3,4]. Immunoreactivity for CD-34 is similar to the results of Nakabayashi et al. [8], and focal positivity for S-100 was also reported in a case of oral angiomyolipoma by Alvarez et al [1].

AML of oral cavity cannot be distinguished clinically from other exophytic masses such as lipomatous or myolipomatous tumours, hemangioma, angiomyoma, angiolipoma, angiomyoma, fibroma, and fibrolipomatous hyperplasia and is rarely considered in differential diagnosis of an exophytic masses in the oral cavity. Histopathologically, two encapsulated tumors including angiolipoma and angioleiomyoma should be considered in microscopic differential diagnosis of oral AML. Presence of three major characteristic components including smooth muscle bundles, thick-walled blood vessels and mature adipose tissue help for definite diagnosis [1].

The exact etiology of AML remains poorly understood. Based on greater incidence of AML in females as well as reports of AML grows during pregnancy and in patients undergoing hormonal therapy, a potential role for hormones has been suggested recently for the pathogenesis of this neoplasm [9]. On the other hand, peripheral giant cell granuloma is an unusual proliferative response of oral mucosa to injury and the role of trauma has been emphasized in the etiology of this lesion. Hormonal influence has been mentioned as a supposed additional factor in the pathogenesis of PGCG [10]. Since the present patient was male, concurrent occurrence of AML and PGCG cannot be explained by the background hormonal changes. It is probable that local trauma could play a role in the pathogenesis of these lesions, however, it can be just an incidental finding until other similar cases would be reported in the literature. Surgical excision seems to be curative and AML of oral cavity usually shows a benign behavior [1].

Although AML of the oral cavity is a rare entity, based on this report and previous reports of the existing literature this soft tissue tumor can be considered in differential diagnosis of exophytic soft tissue masses of oral mucosa. Concurrent occurrence of PGCG which is a reactive mucosal hyperplasia and AML in our patient, could show the probable role of local trauma in the pathogenesis of these lesions.

Acknowledgment

We acknowledge Dr. Soodabeh Lotfi, Dr. Hosein Nikpour, Dr. Mahdie Lashkarizadeh and Dr. Razieh Rezvani Nejad for their kind cooperation.

Conflict of interest

None declared.

References


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