

Case Report

Pseudovascular adenoid squamous cell carcinoma of the tongue: a case report and literature review

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Abstract: Pseudovascular adenoid squamous cell carcinoma (PASCC) is an uncommon histologic variant of squamous cell carcinoma, characterized by acantholysis in the cancer nests resulting in a pseudovascular appearance, and a subtype of acantholytic squamous cell carcinoma. It is relatively common in sun-exposed skin, but is extremely rare in oral cavity. A 56-year-old woman was referred to our department presented with a fast-growing mass in the front of the tongue for more than two months. Physical examination revealed a exophytic lesion with a pedicle in the anterior tongue. An incisional biopsy was performed. On microscopic examination, the tumor was composed of vessel-like anastomosing channels and dilated vessel-like spaces, similar to hemangioma, and the anastomosing channels contained free tumor cells. The nests of tumor cells with significant acantholysis were observed in some regions. Immunohistochemical examination revealed cells positive for pan-CK, CK5/6, p63, and negative for CD31 and CD34. The pathological diagnosis was confirmed as pseudovascular adenoid squamous cell carcinoma. The extended resection of the tumor and neck dissection was performed. There was no tumor recurrence or distant metastasis after 15 months of follow-up.

Keywords: Pseudovascular adenoid squamous cell carcinoma, acantholytic squamous cell carcinoma, oral cavity, immunohistochemistry

Introduction

Pseudovascular adenoid squamous cell carcinoma (PASCC) is a rare but well-defined histologic variant of squamous cell carcinoma (SCC), characterized by the formation of anastomosing spaces and channels, mimicking an angiosarcoma, and also known as angiosarcoma-like SCC and pseudoangiosarcomatous carcinoma [1, 2]. PASCC is a subtype of acantholytic squamous cell carcinoma (ASCC). ASCC is common in the sun-exposed skin in the head and neck with a poor prognosis with a higher risk of recurrence and metastasis compared with squamous cell carcinoma of the skin, and is associated with solar injury [3]. However, ASCC in the oral cavity is extremely rare, especially for PASCC. Herein, we describe a rare case of PASCC of the tongue and to review the literature on all previously published cases, with an emphasis on the clinical manifestations, immunohistochemical characteristics and prognosis.

Case report

A 56-year-old woman was referred to our department presented with a fast-growing mass in the front of the tongue for more than two months. The concomitant symptoms were mild pain and numbness. She denied alcohol abuse, smoking and betel nut chewing, and had never suffered from systemic disease. Physical examination revealed a exophytic lesion with a pedicle in the anterior tongue of about 6 cm × 4 cm × 1 cm in size (**Figure 1**). The lesion was tenderness, soft texture, and was fixed to the underlying structures. The bilateral submandibular lymph nodes were enlarged, painless, movable and firm in consistency. Magnetic resonance imaging demonstrated a soft tissue tumor involving the anterior tongue and enlarged lymph nodes in the bilateral submandibular area.

An incisional biopsy was performed. On microscopic examination, the tumor was composed of vessel-like anastomosing channels and dilat-



Figure 1. Physical examination revealed an exophytic lesion with a pedicle in the anterior tongue of about 6 cm × 4 cm × 1 cm in size.

ed vessel-like spaces, similar to hemangioma, and the anastomosing channels contained free tumor cells (**Figure 2A, 2B**). The nests of tumor cells with significant acantholysis were observed in some regions. Immunohistochemical examination revealed positive for pan-CK (**Figure 2C**), CK5/6 (**Figure 2D**), p63 (**Figure 2E**), vimentin, CD56 and CD99, and negative for CD31 and CD34, EMA, E-cadherin, desmin, MoyD1, S-100, HMB45, LCA, synaptophysin, bcl-2 and NSE. The Ki-67 expression of the tumor cells was 70%. The pathologic diagnosis was confirmed as pseudovascular adenoid squamous cell carcinoma.

The extended resection of the tumor and neck dissection was performed, and ten margins were examined by frozen sections during operation, which showed no invasions. No metastases were observed in the dissected lymph nodes. She recovered well postoperatively but refused to follow-up chemoradiation therapy. There was no tumor recurrence or distant metastasis after 15 months of follow-up.

Discussion

Acantholytic squamous cell carcinoma (ASCC) is a histological variant of SCC, and it was first described by Lever in 1947 as adenoacanthoma of the sweat glands [4]. ASCC is common in the sun-exposed skin in the head and neck with a poor prognosis with a higher risk of recurrence and metastasis compared with squamous cell carcinoma of the skin, and is associated with solar injury [3]. However, it is rare in the upper aerodigestive tract, particu-

larly in the oral cavity. The majority of cases in the oral region have been localized to the vermillion areas of the lip with a relatively favorable prognosis owing to early detection and treatment [5]. Although extremely rare, ASCC can arise in intraoral mucosa, including gingiva [6], buccal mucosa [7], tongue [8], and floor of mouth [9], and the prognosis is poor with a more aggressive nature compared with conventional squamous cell carcinoma [7].

The diagnostic criteria of ASCC as stated by Lasser et al. [10] and Leon et al. [11] are: (1) basic cells of the keratinizing squamous cell type; (2) adenoid structures consisting of a rounded space with a definite wall, principally one-cell thick; and (3) lumen containing single or grouped dyskeratotic acantholytic cells. ASCC is also known as adenoid squamous carcinoma, pseudoglandular squamous cell carcinoma, squamous cell carcinoma with glandlike (adenoid) features, angiosarcoma-like squamous cell carcinoma, adenoacanthoma, pseudovascular adenoid squamous cell carcinoma, pseudoangiosarcomatous carcinoma [12]. However, Alegría-Landa et al. strongly recommend that ASCC should be further classified into the common or ordinary subtype (solid nests containing many or numerous acantholytic atypical keratinocytes without any mimickers for specific structures), pseudoglandular subtype, pseudovascular subtype (neoplastic aggregates of SCC mimic vascular structures containing red cells), and pseudoangiosarcomatous subtype (pseudovascular structures within a SCC showing a layer of atypical cells, mimicking atypical endothelial cells, around a fibrovascular stalk, as well as erythrocytes in the pseudolumina) [13]. The pathologic features of our case were vessel-like anastomosing channels and dilated vessel-like spaces, similar to hemangioma, and the anastomosing channels contained free tumor cells, which is in accordance with pseudoangiosarcomatous subtype mentioned above, that is, pseudovascular adenoid squamous cell carcinoma (PASCC).

Zidar et al. initially reported two cases of PASCC involving maxillary gingiva and floor of the mouth respectively as a variant type of ASCC in oral cavity, and the histological feature of acantholysis of the tumour cells, creating anastomosing spaces and channels thus mimicking an angiosarcoma [9]. Thus, rapid and defi-

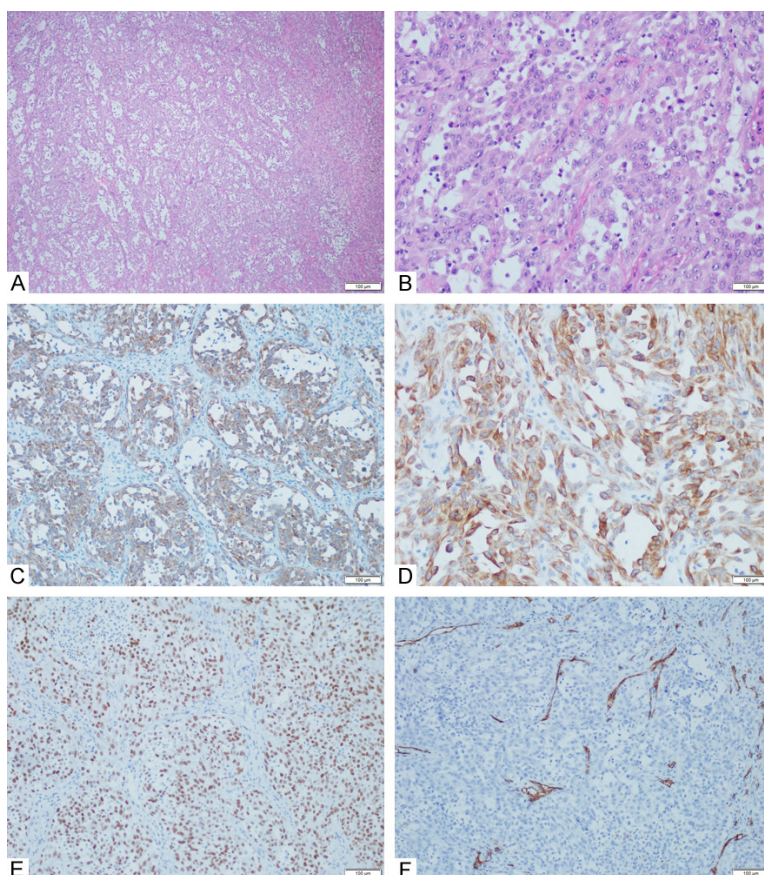


Figure 2. Histologic and immunohistochemical examinations of the pseudovascular adenoid squamous cell carcinoma of the tongue. Histological examination demonstrated the tumor was composed of vessel-like anastomosing channels and dilated vessel-like spaces, similar to hemangioma, and the anastomosing channels contained free tumor cells (A, H&E, $\times 40$; B, H&E, $\times 200$). Immunohistochemical examination demonstrated a positive reaction for pan-CK (C, $\times 200$), CK5/6 (D, $\times 400$), p63 (E, $\times 200$), but negative for CD31 (F, $\times 200$).

nite diagnosis is very important, and immunohistochemical characteristics are helpful in the differential diagnosis. In immunohistochemical studies, PASCC expresses epithelial markers, such as cytokeratins and epithelial membrane antigen. However, angiosarcoma typically expresses vascular antigens, such as CD31, CD34, and von Willebrand factor, which are not expressed in ASCC [9]. Our case was positive for cytokeratins (AE1/AE3 and CK5/6) and p63 supporting a squamous epithelial origin, and negative for CD31 and CD34, excluding an angiosarcoma.

The pathogenesis of PASCC is not completely clear, and may be related to the down-regulation of E-cadherin expression, leading to the loss of tumour cell-cell adhesion and acantholysis [2, 14]. E-cadherin, an important adhesion

molecule of epithelial cells and a morphogenetic regulator playing an important role in the modulation of tissue maturation and tumor differentiation [14, 15], is strongly expressed in well-differentiated cancers, and lowly expressed in poorly differentiated tumours that show strong invasive behaviour [16].

The prognosis of PASCC remains unclear. Two patients reported by Zidar et al. are well 16 and 20 months later [9]. Our patient was free from tumor after 15 months of follow-up. However, some authors believe that ASCC, including PASCC, has a more aggressive behaviour and a unfavourable prognosis than conventional squamous cell carcinoma, but the number of cases reported so far is too small to draw firm conclusions [1, 2].

Conclusions

Pseudovascular adenoid squamous cell carcinoma, one subtype of acantholytic squamous cell carcinoma, is a rare variant of SCC. The diagnosis is based on immuno-

histochemistry, which is characterized by vessel-like anastomosing channels and dilated vessel-like spaces, similar to hemangioma, and the anastomosing channels contained free tumor cells. The pathogenesis of PASCC is not completely clear, and may be related to the down-regulation of E-cadherin expression, leading to the loss of tumour cell-cell adhesion and acantholysis. The prognosis is still unclear, and more cases are needed to determine management guidelines and prognosis.

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Disclosure of conflict of interest

None.

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