CASE REPORT

Pseudovascular adenoid squamous-cell carcinoma of the oral cavity—a report of two cases

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Informed consent was obtained for the publication of the patients' details in this report. Two cases of pseudovascular adenoid squamous-cell carcinoma (SCC) in the oral cavity are described, which were characterised by acantholysis of the tumour cells, with formation of anastomosing spaces and channels mimicking an angiosarcoma. Both tumours contained foci of SCC suggesting the correct diagnosis: in one patient conventional SCC, and in the other, a spindle-cell carcinoma.

The pathogenesis of pseudovascular adenoid SCC is unknown. Our cases were characterised by loss of immunohistochemical expression of E-cadherin, one of the major adhesion molecules of epithelial cells. Pseudovascular adenoid SCC is suggested to be pathogenetically related to the loss of E-cadherin expression, leading to the loss of tumour cell–cell adhesion.

Adenoid squamous-cell carcinoma (SCC) is an uncommon histopathological variant of SCC characterised by acantholysis of the tumour cells, creating pseudolumina and appearance of glandular differentiation.¹ Acantholysis may lead to the formation of anastomosing spaces and channels, mimicking an angiosarcoma. This variant of adenoid SCC, also termed pseudovascular adenoid SCC or angiosarcoma-like SCC, has been reported in the skin of the head and neck,^{2–3} as well as in other organs, such as the breast and lungs,^{4–6} urinary bladder, vulva⁷ and uterine cervix,⁸ but it has not been described in the upper aerodigestive tract. We report two cases of pseudovascular adenoid SCC in the oral cavity.

CASE REPORTS

Case 1

A 59-year-old man presented with three lesions on the buccal mucosa: two erosions and one ulcerated lesion with indurated, slightly raised margins (fig 1A). He was a heavy smoker, but denied alcohol misuse. Biopsy specimens of the erosions showed inflammatory changes and suprabasal acantholysis reminiscent of pemphigus, but direct immunofluorescence was negative. A biopsy of the ulcerated lesion showed invasive SCC with marked acantholysis. A radical excision of the tumour and neck dissection were performed. Twenty months later the patient is alive, with no evidence of disease.

Pathological findings

On macroscopic observation, the excised tumour was round, slightly raised, with central ulceration and measuring 2×2×0.5 cm. When viewed microscopically, the upper two thirds of the tumour were composed of anastomosing vessel-like channels, lined by a single layer of atypical epitheloid cells (fig 1B). Erythrocytes were present within the lumen of

some pseudoglandular spaces, especially in the superficial part of the tumour (fig 1C). At the base, the tumour exhibited the morphology of a poorly differentiated non-keratinising SCC.

On immunohistochemical studies, the tumour cells expressed keratin (fig 1D) and vimentin. They were negative for CD31, S-100, α -smooth-muscle actin and E-cadherin. Special stainings (Alcian-blue, Kreyberg) did not show mucin production within the tumour cells. No metastases were seen in the dissected lymph nodes.

Case 2

A 77-year-old woman presented with a fast-growing polypoid tumour on the right floor of the mouth (fig 2A). She did not smoke and denied alcohol misuse. Biopsy showed an invasive pseudovascular SCC. Excision of the tumour and radical neck dissection were performed. Sixteen months later the patient is alive, with no evidence of disease.

Pathological findings

On macroscopic examination, the excised tumour was polypoid, measuring 4×2×2 cm. The surface was mostly red-brown and smooth, except centrally, where it was whitish. On microscopic examination, the bulk of the tumour was composed of vessel-like anastomosing channels and dilated vessel-like spaces, which were lined by a single layer of atypical epitheloid cells (fig 2B). The lumina of these spaces contained pinkish material, few erythrocytes and rare acantholytic tumour cells. Part of the tumour exhibited the characteristic morphology of a spindle-cell carcinoma, with foci of SCC.

Immunohistochemical analysis showed keratin in the tumour cells. Vimentin was expressed in areas of pseudovascular SCC and spindle-cell carcinoma (fig 2C), but was negative in areas of conventional SCC. The tumour cells were negative for CD31, S-100 and α -smooth-muscle actin. Special stainings (Alcian-blue, Kreyberg) did not show mucin production within the tumour cells. The bulk of the tumour did not express E-cadherin. This was expressed only in small areas of conventional SCC (fig 2D). No metastases were observed in the dissected lymph nodes.

DISCUSSION

The most common cancer in the upper aerodigestive tract is SCC, and most are the conventional-type SCC. Subtypes of SCC, which occur much less frequently, include verrucous SCC, spindle-cell SCC, papillary SCC, basaloid SCC, adenoid SCC, lymphoepithelial carcinoma and adenosquamous carcinoma. Their recognition is important because most of them are true clinicopathological entities, with an important prognostic implication. Moreover, they may mimic other neoplasms, resulting in erroneous treatment.⁹

Abbreviation: SCC, squamous-cell carcinoma

Figure 1 (A) Ulcerated tumour with slightly raised, indurated margins on the buccal mucosa. (B) Tumour with anastomosing vessel-like channels, lined by a single layer of atypical epitheloid cells. (C) The lumina of pseudovascular spaces contain acantholytic tumour cells and erythrocytes. (D) Immunohistochemical analysis showed keratin in the tumour cells. Patient consent was obtained for publication of fig 1A.

Figure 2 (A) Exophytic, polypoid tumour on the right floor of the mouth. (B) Tumour composed of vessel-like anastomosing channels, lined by a single layer of atypical epitheloid cells. The lumina of pseudovascular spaces contain acantholytic tumour cells. (C) Immunohistochemical analysis showing vimentin in areas of pseudovascular squamous-cell carcinoma, but it is negative in areas of conventional squamous-cell carcinoma. (D) Immunohistochemical reaction for E-cadherin is positive in a small area of squamous-cell carcinoma, but is negative in areas of pseudovascular carcinoma. Patient consent was obtained for publication of fig 2A.

Take-home messages

- Pseudovascular adenoid squamous-cell carcinoma (SCC) is a rare variant of adenoid SCC.
- It is characterised by acantholysis of the tumour cells, creating anastomosing spaces and channels thus mimicking an angiosarcoma.
- Accompanying foci of conventional SCC and immunohistochemistry enable the correct diagnosis.
- Pathogenetically, it may be related to the loss of E-cadherin expression leading to the loss of the tumour cell–cell adhesion and acantholysis.
- Prognostic importance of this rare subtype of SCC is at present unknown.

Pseudovascular adenoid SCC or angiosarcoma-like SCC is a rare variant of adenoid SCC characterised by the formation of anastomosing spaces and channels, mimicking an angiosarcoma. It is almost always accompanied by foci of conventional SCC, suggesting the correct diagnosis.^{2–4,6} In small biopsy specimens, however, only the pseudovascular component may be evident and the tumour may be misinterpreted as an angiosarcoma. In such cases, immunohistochemical studies are of utmost importance, leading to the correct diagnosis: pseudovascular SCC expresses epithelial markers, such as cytokeratins and epithelial membrane antigen, whereas angiosarcoma typically expresses vascular antigens—that is, CD31, CD34 and von Willebrand factor, which are not expressed in adenoid SCC.² Cytokeratin, however, may also be positive in angiosarcoma.¹⁰

The aetiology and prognosis are probably similar in adenoid SCC, including pseudovascular SCC, than in conventional SCC. Some authors, however, believe that adenoid SCC, including pseudovascular SCC, has a more aggressive behaviour and a worse prognosis than conventional SCC, but the number of patients reported so far is too small to draw firm conclusions.^{1–2,6,7,11}

Our two cases of pseudovascular SCC contained foci of SCC, which suggested the correct diagnosis. In one patient they consisted of conventional SCC, and in the other a spindle-cell carcinoma. The diagnosis was further confirmed by immunohistochemical studies, which showed positive reaction for keratin and vimentin. Both patients had no metastases at the time of diagnosis, and are well 16 and 20 months later, respectively.

The pathogenesis of pseudovascular adenoid SCC is not completely understood. Acantholysis is suggested to be the underlying pathogenetic mechanism, possibly as a consequence of changes in adhesion molecule expression by the tumour cells.^{7–12} Consistent with this suggestion, in our cases we observed a loss of immunohistochemical expression of E-cadherin, one of the major adhesion molecules of epithelial cells. Studies have shown that E-cadherin is expressed in most SCC in the head and neck, the expression being strong in well-differentiated cancers, which are less invasive, but

reduced in poorly differentiated tumours that show strong invasive behaviour.^{13–14}

In conclusion, although the prognostic importance of pseudovascular adenoid SCC in the head and neck is now unknown, its recognition is important because it may mimic angiosarcoma, which may result in erroneous treatment. The study of these two cases suggests that this rare subtype of SCC may be pathogenetically related to the loss of E-cadherin expression, leading to the loss of tumour cell–cell adhesion and acantholysis, characteristic for this particular type of SCC.

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