Adenoid dysplasia of the oral mucosa

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Objective. To describe an unusual variant of oral epithelial dysplasia and to provide an appraisal of its immunohistochemical profile.
Study Design. An unusual form of epithelial dysplasia, which we have termed adenoid dysplasia, was evaluated for staining of cytokeratins AE1/AE3, vimentin, E-cadherin, and β-catenin. The immunohistochemical results were compared with those observed in moderate epithelial dysplasia, moderately differentiated squamous cell carcinoma, and acantholytic squamous cell carcinoma.
Results. The immunoprofile of adenoid dysplasia was similar to that of acantholytic squamous cell carcinoma. Cytokeratin positivity within the acantholytic dysplastic cells confirmed their epithelial nature, and upregulation of vimentin was suggestive of epithelial-mesenchymal transition. The most distinctive finding was a loss of E-cadherin expression within the discohesive cells, accompanied by increased cytosolic expression of β-catenin.
Conclusions. This report presents the histomorphologic features of a unique form of oral epithelial dysplasia, termed adenoid dysplasia. (Oral Surg Oral Med Oral Pathol Oral Radiol 2014;118:586-592)

The burden of head and neck cancer remains a global public health problem despite advances in diagnostic techniques and therapeutic management. Squamous cell carcinoma is the most predominant epithelial malignancy in this anatomic region, with up to half of all newly diagnosed cases that involve the oral cavity and lip having a strong association with tobacco use and alcohol consumption.[1] The poor survival in patients with oral cancer is often due to late presentation in patients with advanced-stage disease. The early detection and identification of patients at risk is thus essential for preventative management. At a microscopic level, the development of invasive carcinoma is often preceded by oral epithelial dysplasia.[2] At present, histologic grading of oral epithelial dysplasia remains most predictive of lesion progression to invasive malignancy.[1,2] The World Health Organization grades dysplasia as mild, moderate, or severe, with full-thickness epithelial changes being referred to as carcinoma in situ.[3] The subjective nature of this grading system has led to alternative proposals for modification to the classification, including the use of a binary system that categorizes lesions as low-risk or high-risk.[4]

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We have recently encountered an unusual form of moderate (high-risk) oral epithelial dysplasia in our routine diagnostic histopathology service (University of Pretoria, South Africa). The patient in this case presented with clinical features typical of proliferative verrucous leukoplakia (PVL). The initial incisional biopsy showed features of high-risk epithelial dysplasia in which conspicuous pseudoglandular spaces containing acantholytic dysplastic cells were identified, which we have termed adenoid dysplasia (AD). A second biopsy, taken 2 years later, showed a verrucous carcinoma with the same peculiar glandular spaces as noted before. The aim of this report is to document this unconventional form of oral epithelial dysplasia in a patient with PVL, which to the best of our knowledge has never been described before.

CASE DESCRIPTION AND METHODOLOGY

A 90-year-old woman presented to the clinic in 2009 with a 9-month history of multifocal white oral mucosal lesions that had increased in size according to the history. A clinical diagnosis of PVL was made (Figure 1). The patient had no history of tobacco use or excessive alcohol consumption, and no additional risk factors for the development of oral malignancy could be identified. An incisional biopsy from the right buccal mucosa

Statement of Clinical Relevance

This study documents a unique histomorphologic form of oral epithelial dysplasia in a patient diagnosed with proliferative verrucous leukoplakia.

Fig. 1. Clinical features of the lesion on the right buccal vestibule from which the incisional biopsy microscopically designated as adenoid dysplasia was obtained.

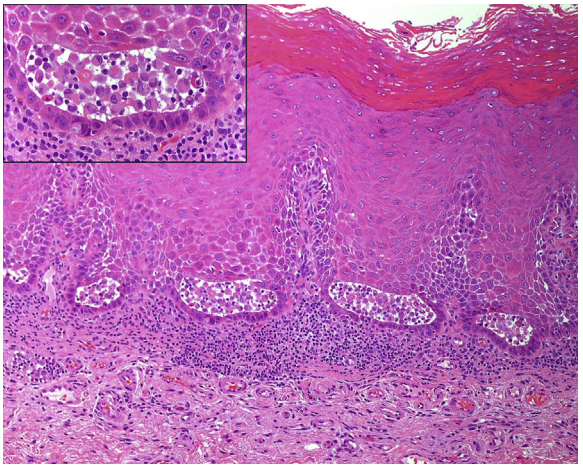

Fig. 2. Histopathologic features of adenoid dysplasia, characterized by dysplastic epithelium in which pseudoglandular spaces are identified, containing free-floating dyskeratotic epithelial cells (hematoxylin-eosin, original magnification ×100; inset, original magnification ×400). A high-resolution version of this slide is available as eSlide: VM00349.

showed marked hyperkeratosis and cytologic features in keeping with moderate (high-risk) epithelial dysplasia. Within the basal third of the epithelium were pseudoglandular spaces lined in part by a single layer of cuboidal epithelial cells. Within the central luminal spaces were several acantholytic, dysplastic squamous epithelial cells (Figure 2). These features were distinctly reminiscent of those seen in acantholytic squamous cell carcinoma (ASCC). A patchy interface mucositis was also present. There was no evidence of invasive malignancy in any of the sections examined.

The patient was counseled but refused any treatment. The patient was seen at regular intervals and subsequently developed mixed red and white areas that were

Fig. 3. Follow-up clinical photograph from the same patient 2 years later. A second incisional biopsy, this time obtained from the edentulous maxillary ridge, showed evidence of a verrucous carcinoma.

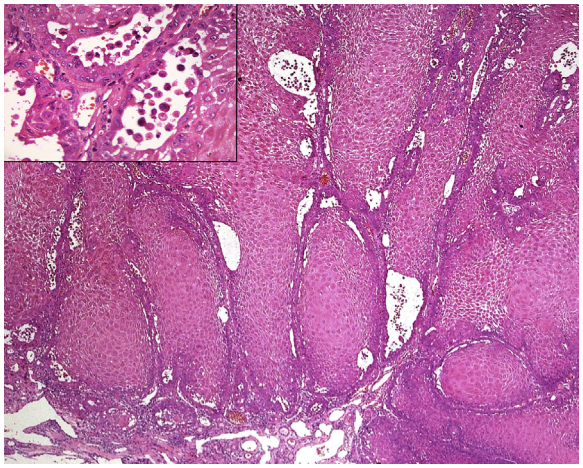

Fig. 4. The histopathologic features noted in the biopsy specimen obtained from the edentulous right maxillary alveolar ridge in the same patient 2 years later. A verrucous carcinoma was diagnosed. The same peculiar adenoid structures identified in the initial dysplastic lesion are represented again (hematoxylin-eosin, original magnification ×40; inset; original magnification ×400). A high-resolution version of this slide is available as eSlide: VM00361.

highly suggestive of malignancy (Figure 3). A second biopsy obtained from the upper right edentulous maxillary alveolar ridge in 2011 showed features of a verrucous carcinoma. The very same features of pseudoglandular spaces/adenoid structures containing acantholytic cells were identified within this follow-up biopsy (Figure 4).

The formalin-fixed, paraffin embedded tissue sections were stained for routine histomorphologic assessment by means of hematoxylin-eosin stain. Immunohistochemical staining was performed on 4-μm sections, which were first deparaffinized and hydrated and then processed with antigen retrieval. Antibodies to