Langerhans cells in keratoacanthoma

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Keratoacanthoma is a self-limiting epithelial lesion with a clinical and histopathological feature similar to a well-differentiated squamous cell carcinoma (SCC). In this case report we discuss a skin keratoacanthoma at the right anterior neck. Moreover, immunohistochemistry was used to study the Langerhans cells in the lesion.

A 33-year-old male patient noticed an elevated dome-shaped nodule with a central plug of keratin at the right anterior neck for 1 month. He came to our dental department for treatment of the tumor and was referred to the Oral and Maxillofacial Surgery Department for further management. Excisional biopsy was performed under local anesthesia. Grossly, the specimen was 1.0 cm × 1.0 cm × 0.7 cm in size. A histopathological examination of the excised specimen showed a keratoacanthoma composed mainly of an extensive epidermal proliferation with a central keratin plug. An acute angle was formed between the overlying surface epithelium and the lesional epithelium (Fig. 1A). The epithelium lining the central crater was benign-looking. However, nests of stratified squamous epithelium with central keratin pearl were found in the deep part of the tumor (Fig. 1B). Although the lesion looked like a well-differentiated SCC, the overall pattern of the lesion confirmed the diagnosis of a keratoacanthoma. Anti-CD1a and anti-S-100 immunostains were used to identify and quantify the number of Langerhans cells in the overlying surface epithelium and in the lesional epithelium. Only Langerhans cells presenting nucleus and visible dendrites were counted, and the Langerhans cell count was expressed as a mean number of Langerhans cells in five high-power fields (40× magnification). The anti-CD1a immunostained section showed a significantly higher mean number of Langerhans cells in the overlying surface epithelium (9.0 ± 2.0 cells per high-power field) than in the lesional epithelium (3.6 ± 1.7 cells per high-power field; p < 0.002, Student t test; Fig. 1C and D). The anti-S-100 protein immunostained section also demonstrated a significantly higher mean number of Langerhans cells in the overlying surface epithelium (12.8 ± 1.8 cells per high-power field) than in the lesional epithelium (7.6 ± 2.1 cells per high-power field; p < 0.003, Student t test; Fig. 1E and F). No local recurrence of the lesion was found during the 3-month follow-up period.

Keratoacanthoma is an elevated crater-like lesion with a self-healing potential and a clinical and histopathological similarity to a well-differentiated SCC. Langerhans cells in the lesional epithelium of keratoacanthoma are rarely investigated.1 This study used both anti-CD1a and anti-S-100 protein immunostains to identify the Langerhans cells in the overlying surface epithelium and in the lesional epithelium. Both immunostaining techniques found a significantly higher mean number of Langerhans cells in the overlying surface epithelium than in the lesional epithelium, suggesting a reduction of the number of Langerhans cells during the pathogenesis of a keratoacanthoma. In fact, either anti-CD1a or anti-S-100 protein immunostain

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can be used to identify Langerhans cells in central granular cell odontogenic tumors, in lining epithelia of odontogenic cysts, and in odontogenic epithelia of odontogenic fibromas. In addition, anti-S-100 protein immunostain can also be used to confirm the diagnosis of oral melanomas.

References


