Self-involution of a nasal giant keratoacanthoma in a young female patient

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Summary
Keratoacanthomas are epithelial skin tumors with a characteristic rapid growth within a few weeks. We present the case of a 32-year-old female patient who developed six months postpartum fast-growing coalescing erythematous to yellowish nodules on her nose. Several repeatedly performed skin biopsies showed characteristics of a keratoacanthoma-like squamous cell carcinoma. Because of the extraordinary clinical appearance, the young age of the patient and the rapid growth, skin biopsies were evaluated by histopathologists from several different histopathological reference centers. Based on clinical behavior and histopathological findings our final diagnosis was that of a giant keratoacanthoma. The patient refused any surgical treatment or radiotherapy, despite further growth of the lesion. After three months of continuous growth the lesion started to involute spontaneously and resolved almost completely. Taken together, the present case underscores the importance of a clinical-histopathological correlation before invasive therapeutic measures as used in squamous cell carcinoma are initiated. We emphasize that surgical intervention is also the treatment of choice for giant keratoacanthomas. The subsequent active surveillance strategy with almost completed clearing of the lesion may add to the ongoing discussion on the treatment of giant keratoacanthomas in centro-facial localizations, in particular when the patient refuses surgery. However, careful follow-up examinations are mandatory.

KEY WORDS: giant keratoacanthoma; self-involution; keratoacanthoma; epithelial skin tumor.

Introduction
Keratoacanthomas are epithelial skin tumors with a characteristic rapid growth within a few weeks (1-3). Giant keratoacanthomas are a rare variant of keratoacanthomas with a size exceeding 2 cm (4, 5). Like other forms of keratoacanthomas, they are fast growing and have a tendency to spontaneously regress, however can cause significant anatomic damage. Giant keratoacanthomas are mostly treated by surgery or by a combination of surgery and radiotherapy. Even deeply infiltrative giant keratoacanthomas may have the potential for spontaneous involution. The present case may add to the ongoing discussion on the treatment strategy of larger keratoacanthomas in difficult facial localizations.

Case report
Six months postpartum a 32-year-old breastfeeding female developed progressively growing erythematous to yellowish nodules on her nose (Figure 1a). With the initial diagnosis of a carbuncle the patient was admitted to our department for intravenous antibiotic treatment. After increasing erythema and further expansion, systemic treatment was changed to doxycycline and a short course methylprednisolone, under the assumption of a localized rosacea fulminans.

Treatment with oral retinoids was refused by the patient. A punch biopsy revealed a huge proliferation of epithelial strands with massive keratinization accompanied by a dense lymphocytic infiltrate (Figure 2a-d). Focally perineural infiltration was observed. Apart from a well differentiated squamous cell carcinoma of the keratoacanthoma type, initially also a pseudocarcinomatous proliferation as for example...
known from halogenodermas or a hypertrophic variant of lupus erythematosus was discussed. Because of the unusual medical history and the clinical presentation clinical pictures as well as biopsy material were also evaluated by several dermatopathologists. The histopathological findings were interpreted as a well-
Self-involution of a nasal giant keratoacanthoma in a young female patient

differentiated keratoacanthoma-like squamous cell carcinoma. Two weeks after discharge from our department the patient presented with further enlargement of the tumorous lesion on the nose (Figure 1 b). Three additional skin biopsies (Figure 1 c) were taken with similar histopathological findings compared to the first biopsy. Consultations of further (dermatology)pathologists confirmed the diagnosis of a well-differentiated squamous cell neoplasm and in the context with the clinical presentation the diagnosis of a giant keratoacanthoma was made (3). Further diagnostic examinations including ultrasound of the local lymph nodes, a cerebral MRI and a whole-body CT-scan were normal. The patient's findings were discussed in our interdisciplinary tumor board. Due to an erythematous streak along the vena angularis suggestive for lymphangiosis as an initial sign of further tumor spread, a biopsy and ligation of the vessel were performed. Histological examination showed no signs of malignancy. Any further surgical interventions as well as radiotherapy were refused by the patient. Six weeks later the patient presented again to our department with beginning spontaneous involution of the lesion. After another six weeks a nearly complete resolution of the lesion was observed (Figure 1 d). Further biopsies were refused by the patient. Instead we chose an active surveillance strategy with regular close follow-ups.

Discussion

Keratoacanthomas were first described in 1889 by Sir Jonathan Hutchinson as “the crateriform ulcer of the face, a form of acute epithelial cancer” (1). Indeed keratoacanthomas are epithelial neoplasms of the skin with a characteristic rapid growth within a few weeks. Their maximal size is normally reached after 6 weeks. The etiology of keratoacanthomas is unknown, but an association with chronic UV-exposure, defects in DNA repair genes, alterations in skin papilloma viruses has been described (2). Moreover, keratoacanthomas appear with higher frequency in immunodeficient patients (6). In our case postpartum hormonal changes in a breastfeeding woman might be discussed as a kind of immunomodulation. Keratoacanthomas are thought to represent a special variant of well differentiated squamous cell carcinomas. Untreated keratoacanthomas tend to involute passing three stages: proliferative stage with rapid growth, maturing stage with development of a central keratinous plug and involution with necrosis (7). Keratoacanthomas that exceed a size of 20 mm in diameter are defined as giant keratoacanthomas (5). Giant keratoacanthomas may result in severe destruction of the surrounding tissue and tend to leave a scar after self-involution. In the majority of cases keratoacanthomas are removed surgically, but successful treatments with radiotherapy, systemic retinoids or intralesional drug therapy such as 5-fluorouracil, methotrexate, bleomycin and interferon have been described. In a small number of five published cases giant keratoacanthomas on the face spontaneously involuted without any therapeutic intervention (4, 8-11). Lucente described in 1985 the involution of a giant keratoacanthoma of the size of 8 cm (10). Nevertheless, due to the often exposed localization of keratoacanthomas and the unpredictable course most patients and physicians are concerned about these tumors, and tumors are therefore rarely left untreated.

In summary, clinical-pathological correlation is essential for the diagnosis of giant keratoacanthoma, and its differentiation from squamous cell carcinoma impacts on treatment recommendations. Recommended treatments for giant keratoacanthoma are surgery or radiotherapy. However, although rarely described, a successful active surveillance strategy, may add to the ongoing discussion on treatment strategies for individual patients.

References