Recurrent Keratoacanthoma

Isabella Kest1, Kaylee Fisher1, Nahla Shihab, MD2, Mark Lebwohl, MD2

1Icahn School of Medicine at Mount Sinai, New York, NY
2Department of Dermatology, Icahn School of Medicine at Mount Sinai, New York, NY

ABSTRACT

Keratoacanthoma (KA) is a cutaneous squamoproliferative tumor with multiple possible etiologies while KA commonly have a benign course and resolve spontaneously. However, because there are rarely instances where it can metastasize, some consider it to be a form of squamous cell carcinoma (SCC). We report the case of a 65-year-old Caucasian man diagnosed with KA in the conch of the left ear, which initially resolved with intralesional methotrexate but eventually recurred.

INTRODUCTION

Keratoacanthoma (KA) is a cutaneous squamoproliferative tumor that typically presents as a 1 to 2 cm dome shaped nodule with central keratosis.1 KA is often characterized by phases of rapid growth, lesion stability and rapid involution. Possible etiologies suggested include ultraviolet radiation, exposure to chemical carcinogens, immunosuppression, use of BRAF inhibitors, genetic predisposition, viral exposure (e.g. human papillomavirus), and recent trauma or surgery to the location.2 KA more frequently affects middle age to elderly adults with fair skin. KA is often confused with squamous cell carcinoma (SCC) or even regarded as a variant of SCC, because of the similarity in histopathological appearance.3,4 Nonetheless, KA can regress without treatment and has a low incidence of metastasis. Therefore, there is a debate regarding the necessity of treatment. Because of histopathological overlap with squamous cell carcinoma, surgical excision with clear margins is often recommended. Other modalities have been used successfully including: topical 5% imiquimod cream, topical 5% 5-flourouracil (5-FU) cream, intralesional bleomycin, intralesional methotrexate, intralesional 5-FU, and oral isotretinoin.2 Intralesional methotrexate (MTX) injections have proven to be an effective treatment option for KAs.2 MTX is a folic acid analogue that permanently binds to dihydrofolate reductase and blocks the formation of tetrahydrofolate which prevents the synthesis of the purine nucleotide thymidine, thereby leading to a halt in DNA synthesis.5 It is recommended that MTX injections be used as the first line of treatment when KAs are presented in cosmetically sensitive areas and in elderly patients.5

CASE PRESENTATION

A 65-year-old man presented with a growing lesion on the conch of his left ear...
for roughly 1 month. He also had a history of SCC on his right forehead and basal cell carcinoma (BCC) on his right upper eyelid. Upon physical examination, there was an erythematous dome-shaped papule with central crust on his left conchal bowl (Figure 1). We performed a skin biopsy that revealed a squamous cell carcinoma, keratoacanthoma type. We treated him with three injections of 0.5 ml intralesional methotrexate 25mg/mL spaced over one- to two-week intervals. Eventual resolution was noted and was histologically confirmed with no residual tumor. One year later, the patient came back with a nodule with central ulcer to cartilage at the same site of prior resolved KA (Figure 2). There were no clinically apparent nodes palpated at the parotid, submandibular, cervical, preauricular, postauricular, axillary, or inguinal areas. Histopathology examination revealed squamous cell carcinoma, invasive type. The patient was then referred for Mohs micrographic surgery.

**DISCUSSION**

Keratoacanthoma (KA) is a cutaneous neoplasm that is characterized by rapid growth and spontaneous regression.\(^1\) It can be difficult to treat due to its tendency to locally destroy tissue. Intralesional methotrexate (MTX) has been proven to be an effective nonsurgical treatment for KA and can lead to resolution after 3-8 injections in about 83% to 100% of patients.\(^2,4-6\) MTX is used for rapidly growing lesions due to its tendency to inhibit DNA synthesis in cells that are actively dividing.\(^4\) Such localized therapeutics can be an alternative to surgical excision especially in patients with multiple comorbidities and risk factors (e.g. therapeutic anticoagulation) and cases that require extensive surgical reconstruction, particularly in sensitive sites such as the ear.\(^5,7\)

In this case report, our patient was successfully treated with intralesional MTX and confirmed with histopathology examination that showed no residual tumor. Despite this, the patient returned after one year with a more aggressive lesion: biopsy
proven SCC, invasive type. To our knowledge, there are no known cases of lesions recurring after a complete resolution with intralesional MTX. Few cases reported KAs developing after dermatologic surgery, suggesting a role for trauma (i.e. Köebner phenomenon) in KA development, recurrence, and progression.\(^8\)\(^-\)\(^10\) In such cases of aggressive tumors in sensitive location, Mohs micrographic surgery has benefits of rapid treatment and definitive histopathological examination, in addition to optimal margin control and conservation of normal tissue.\(^11\)

**CONCLUSION**

Even after biopsy-proven complete resolution with an effective treatment, KAs may have the potential to recur or behave like SCC. As such, patients who develop KAs likely require initial treatment and further monitoring for recurrence, as progression to invasive SCC may occur.

**Conflict of Interest Disclosures:** None

**Funding:** None

**Corresponding Author:**
Nahla Shihab, MD
Department of Dermatology
Icahn School of Medicine at Mount Sinai
5 E 98th street, New York, NY 10029
Email: nahla.shihab@gmail.com

**References:**