

Longstanding Eruptive Keratoacanthoma of the Neck arising from a Tattoo

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Abstract:

Keratoacanthoma (KA) is a cutaneous neoplasm arising from follicular hair cells on sun exposed regions of the skin, particularly the head and neck. Their pathology remains controversial thus distinguishing between KA and squamous cell carcinoma (SCC) has proven to be difficult over the years. Some expert pathologists consider KA a precursor to SCC, while others define it as a well-differentiated variant of SCC or an abortive malignancy with low potential of progression to a full invasive squamous cell carcinoma. There are many previously reported provoking factors of KA, often divided in subgroups of immunosuppression/immunodeficiency, electromagnetic radiation, trauma, chemical factors, and medications. Tattooing has been implicated as a cause of KA through introduction of exogenous pigments into the dermis, which are composed of carcinogenic azo pigments and polycyclic compounds. Simple KA grows slowly and often resolves in months though its course can be longer depending on its resemblance/progression to SCC. Surgical excision remains the treatment modality of choice for larger lesions; however, other options including cryotherapy, laser therapy, and intralesional chemotherapy have been reported as either an adjunct or an alternative to surgical excision. We discuss the case of a patient who presented with an eruptive keratoacanthoma adjacent to portions of a neck tattoo that was treated with surgical excision.

Keyword: Keratoacanthoma; squamous cell carcinoma; squamous cell carcinoma

Introduction

Keratoacanthoma (KA) is a cutaneous neoplasm arising from follicular hair cells on sun exposed regions of the skin, particularly the head and neck. Their pathology remains controversial thus distinguishing between KA and squamous cell carcinoma (SCC) has proven to be difficult over the years. Some expert pathologists consider KA a precursor to SCC, while others define it as a well-differentiated variant of SCC or an abortive malignancy with low potential of progression to a full invasive squamous cell carcinoma [1]. There are many previously reported provoking factors of KA, often divided in subgroups of immunosuppression/immunodeficiency, electromagnetic radiation, trauma, chemical factors, and medications. Tattooing has been implicated as a cause of KA through introduction of exogenous pigments into the dermis, which are composed of carcinogenic azo pigments and polycyclic compounds [5]. Simple KA grows slowly and often resolves in months though its course can be longer depending on its resemblance/progression to SCC. Surgical excision remains the treatment modality of choice for larger lesions; however, other options including cryotherapy, laser therapy, and intralesional chemotherapy have been reported as either an adjunct or an alternative to surgical excision. We discuss the case of a patient who presented with an eruptive keratoacanthoma adjacent to portions of a neck tattoo that was treated with surgical excision.

Case Report

We present a 37-year-old Puerto Rican male who arrived to our emergency department with a right-sided, friable, tender, raised,

cauliflower-like neck mass measuring 5.4 x 5.3 x 2.5cm in size. Adjacent to this mass, the patient had several tattoos. He first noticed the lesion approximately 2.5 years ago. At the time, the mass was small and he chose not to follow up with his doctor assuming it would spontaneously resolve. Over the last few months, the patient states the mass grew rapidly in size and would sporadically bleed. His medical history includes a 9-pack year history of tobacco abuse and drinking alcohol socially. Further medical history is noncontributory.

Prior to any surgical intervention, laboratory and diagnostic testing were performed. On initial reports, the patient was negative for HIV or Hepatitis. A computed tomography scan of the neck was performed identifying a mass with adjacent adenopathy and prominent vasculature involvement consistent with a neoplastic lesion. To obtain a diagnosis, a punch biopsy was performed under local anesthesia. After clinical and histopathological analysis, we confirmed the lesion to be of squamous cell carcinoma, keratoacanthoma type. Due to the complexity and scale of the mass, the patient was referred to a larger institution for a radical neck dissection.

Discussion

Keratoacanthoma (KA) is thought to originate from the hair follicle and often affects fair skinned people in sun-exposed areas. Its differentiation from squamous cell carcinoma is controversial as most pathologists believe it is a variant of SCC while others believe it is distinct from SCC with the potential to transform into SCC [1]. While there are several causes of SCC keratoacanthoma type, tattoos have been reported as a

provoking factor for its development. It is hypothesized that the skin tries to eliminate the foreign body chemicals by creating granulomas or lysing the offender via a cytotoxic or humoral immune response [2]. The combination of injecting permanent ink into the dermis, which causes a local inflammatory response to the skin and in some cases a cutaneous reaction, UV light exposure, and genetic predisposition create the perfect catalysts for the development of SCC KA-type [3,4]. Red tattoo ink has been found to be most involved in the pathogenesis of the SCC, KA type, although our patient did not have red ink on or near the mass [5]. The age of the tattoo at the time of presentation often varies widely from weeks up to 50 years status post tattoo. As such, time is not a relevant factor in the development of KA.

Multiple treatments have been reported in the literature, but surgical excision remains the mainstay. Surgical excision should include 4 to 6mm margins and close follow up [2]. Other reports include intralesional therapy with various medications including, but not limited to, methotrexate, 5-fluorouracil, bleomycin, interferon-alfa and systemic retinoids [5]. Management of a KA with acitretin has also been reported with promising results.

Conclusion

Our patient presented with longstanding Squamous Cell Carcinoma, Keratoacanthoma Type with no significant risk factors except the extensive tattoos adjacent to the mass. Based on the presentation of our case and the pathological findings, this case adds to the list of reported cases regarding the role tattoos play in the pathogenesis of SCC, KA type.