Squamous Cell Carcinoma, Keratoacanthoma-type Within a Tattoo

Elise Grgurich DO
Lehigh Valley Health Network, elise.grgurich@lvhn.org

Nektarios I. Lountzis DO
Lehigh Valley Health Network, Nektarios_I.Lountzis@lvhn.org

Stephen Purcell DO
Lehigh Valley Health Network, Stephen.Purcell@lvhn.org

Follow this and additional works at: http://scholarlyworks.lvhn.org/medicine
Part of the Dermatology Commons, and the Medical Sciences Commons

Published In/Presented At

This Poster is brought to you for free and open access by LVHN Scholarly Works. It has been accepted for inclusion in LVHN Scholarly Works by an authorized administrator. For more information, please contact LibraryServices@lvhn.org.
Squamous Cell Carcinoma, Keratoacanthoma-type Within a Tattoo

Elise Grgurich, DO, Nektarios Lountzis, MD, and Stephen Purcell, DO
Lehigh Valley Health Network, Allentown, Pennsylvania

Case Presentation:

Patient: 64 year-old Caucasian male.

History of Present Illness: Patient presents with new growths on his right outer leg that have been present for four months. Lesions appeared within the red ink portion of his tattoo. He admits to burning sensation if touched but denies itching and bleeding. Patient tried using antibiotic ointment which he believes made the lesions larger.

Medical History/Surgical History: Four cutaneous squamous cell carcinomas with two being the keratoacanthoma type, emphysematous, hepatitis C, coronary artery disease, myocardial infarction, cerebral vascular accident, tonsilllectomy, inguinal hernia s/p herniorrhaphy

Medications: Apixaban, esomeprazole, and tiotropium inhalanted

Previous Treatments: Wide local surgical excision and excisional biopsies

Physical Examination: There is a large tattoo comprised predominantly of red ink on the right anterior leg. Within the portion of the tattoo are four scattered erythematous, crateriform, keratotic papules and nodules ranging in size from 0.6-1.1 cm.

Studies: Advanced Dermatology Associates, LTD. (AD15-00774, 1/21/2015) 1. Right inferior lateral lower leg, anterior; 3. Right lateral lower leg, proximal superior; and GMS were each performed and were negative for infectious organisms. 2. Right lateral lower leg, proximal posterior measuring 8 mm and 9 mm respectively.

Discussion:

Keratoacanthoma (KA) is a common keratinizing squamous cell neoplasm characterized by rapid growth and spontaneous involution. Though the origin is not completely understood, ultraviolet light, carcinogenic exposure, genetics, immunosuppression, viral infection and trauma have been associated with development of KA. Tattoo-induced KA is less commonly reported. It typically presents as a rapidly enlarging crateriform nodule most commonly on sun-exposed skin. Clinically the lesion may resemble a viral verruca, squamous cell carcinoma, and mycobacterial or fungal infection.

Histopathologically, KA demonstrates a well-circumscribed, keratin-filled invagination of the epidermis with hyperkeratosis, parakeratosis, and acanthosis. Atypical squamous cells may be present but cellular atypia is less remarkable as the lesion matures. Histopathological differential includes pseudoepitheliomatous hyperplasia, squamous cell carcinoma (SCC), and verrucous carcinoma. Pseudoepitheliomatous hyperplasia is a similar appearing, rapidly growing lesion that is often difficult to distinguish from KA; histopathological correlation is required for diagnosis. A history of rapid growth and development may help distinguish KA and SCC clinically.

Most cutaneous reactions associated with tattoos occur within red ink. A case series of 11 KAs associated with tattoos demonstrated that 82% were within or in close proximity to red ink. Mercury sulfide (cinnabar), sienna (ferric hydrate), sandalwood, brazilwood, and organic pigments (aromatic azoic compounds) have all been found in red ink. Mercury compounds were eliminated in 1976 because of its potential carcinogenicity. However, some organic colorants (azo compounds) that were classified as carcinogenic remain in current ink products. Approximately 50 skin cancers in tattoos have been reported in the past 40 years, 23 of which presented as SCC and KA. In the past few years there has been an increase in the incidence of isolated and eruptive KAs within tattoos. Potential mechanisms of induction have been proposed and include trauma from the tattoo procedure, introduction of potentially carcinogenic compounds, and sun-exposure. However, with such a low number of reported skin cancers arising in tattoos some consider the association between tattoos and skin cancer coincidental. Despite the elusive pathogenesis of this phenomenon, which presented as SCC and KA. In the past few years there has been an increase in the incidence of isolated and eruptive KAs within tattoos. Potential mechanisms of induction have been proposed and include trauma from the tattoo procedure, introduction of potentially carcinogenic compounds, and sun-exposure. However, with such a low number of reported skin cancers arising in tattoos some consider the association between tattoos and skin cancer coincidental. Despite the elusive pathogenesis of this phenomenon, the presence of intracorneal red tattoo pigment within the squamous proliferations in our specimens raises the possibility that the lesions could represent a reactive form of transepidermal elimination of the tattoo pigment.

Primary management of these lesions includes complete surgical excision. Careful long-term follow-up is recommended to monitor for recurrence or presence of new lesions. Though larger studies are needed to determine the actual causation of skin cancer within tattoos, patient education on the potential health effects of tattooing and implementation of regulations regarding ink manufacturing is necessary in the meantime.

REFERENCES: