The girl with the cancer tattoo

N Kairinos,[1] D Asmal[2]
[1] Plastic and Reconstructive Surgeon, Editor-in-Chief of the Journal of Wound Healing Southern Africa
[2] Dermatologist, Cape Town Mediclinic and Rondebosch Medical Centre
Corresponding author, email: nickykairinos@gmail.com

With the tattoo industry expanding, tattoos are becoming even more popular than before. In the wound care industry it is not uncommon to be faced with a wound on a tattooed limb, usually due to a cause unrelated to the tattoo. Although complications following tattooing are rare, cases of wounds due to tattooing are possible due to infections that arise immediately following the procedure and also as a result of reactions to the ink. As with all wounds, however, one must always be cognisant of the possibility of malignancy developing in a wound or even being the original cause of the wound. One such case of a wound developing soon after tattooing is reported, which was later discovered to be a malignancy. This case illustrates the importance of always suspecting malignancy when dealing with wounds and not to be distracted by another apparent cause for the wound. This is particularly important in chronic wounds that do not respond to therapy.

Wound Healing Southern Africa 2020;13(1):30-32

Introduction

It is not uncommon to find a chronic wound against the background of a tattoo, considering the popularity of tattoos and the fact that they often appear on limbs, where wounds happen to be more prevalent. These wounds are usually unrelated to the tattoo. Occasionally one sees spontaneous wounds that occur soon after tattooing. These wounds are largely attributed to the tattoo itself and can manifest as a result of many different causes (infection, allergic reactions, local irritation and toxic reactions) and have varying clinical presentations (raised plaques, papulonodular rashes, hyperkeratoses, ulceronecrotic defects and necrotising fasciitis).[1]

Skin malignancies, such as basal cell or squamous cell carcinomas and melanomas, can occur in tattoos but are extremely uncommon and there is a paucity of evidence to demonstrate that the tattoo itself was the predisposing cause of the cancer.[2,3] This despite the fact that some tattoo inks contain potential carcinogens known from toxicology data.[2]

A rare case is presented of a recalcitrant wound in a recently tattooed site that was later discovered to be a squamous cell carcinoma.

Case report

A 37-year-old school receptionist and tattoo model presented to the Cape Advanced Wound Care Centre (CAWCC) in Cape Town, South Africa, with a two-month old ulcerated wound on her left leg. It was located within the black-inked part of a recent tattoo on her left leg. It allegedly started as a small lump about two weeks after tattooing, which progressed in size and eventually ulcerated two weeks later. She had already received two courses of antibiotics at that stage.

Due to the unusual nature of the presentation and because CAWCC is a multidisciplinary wound centre, the wound care practitioner presented the case to the team for advice.

Examination demonstrated a skin lesion with a 1.5 cm diameter, which had a well-defined, raised edge and a central keratotic core (Figure 1). The latter later fell out, revealing an ulcerated base. The morphological appearance of the wound had features in keeping with a keratoacanthoma (KA), which is a common, keratinising

Figure 1: Ulcerative wound within a tattoo on left lower leg

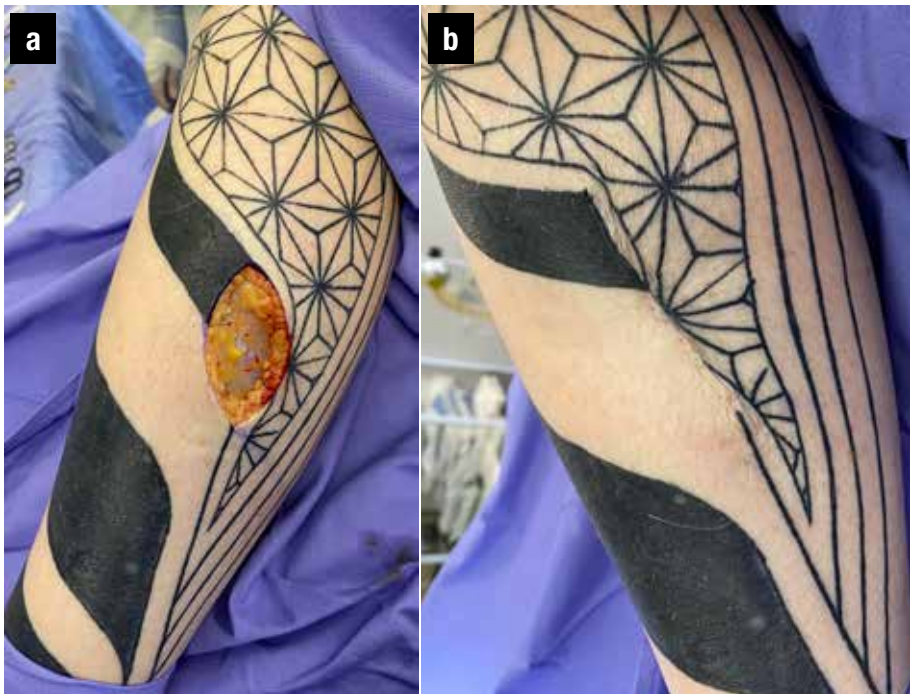

Figure 2: Lesion was excised (a) and repaired (b) with a layered closure with resorbable sutures

Figure 3: Picture sent by patient three weeks later demonstrated uneventful healing

squamous cell neoplasm, characterised by rapid growth (often painful). It usually spontaneously involutes after 6–12 weeks. These are typically found on the skin of older individuals with chronic sun-damage.

She, on the other hand, was younger and her ulcer was not painful. In addition, she had spent very little time in the sun in her past and had no visible signs of sun-damage. Her background history was therefore not typical of a patient who would develop a KA. A superficial curettage biopsy undertaken by the wound care practitioner at the time of presentation was reported as: "parakeratotic scale with a mild inflammatory infiltrate". It was uncertain, however, as to how representative the specimen was.

Given her history and presentation, a neoplasm was considered less likely and it was therefore decided that the dermatologist on the team should manage her for the more common causes of tattoo complications (infection or hypersensitivity reactions).

After three weeks of poor progress to the treatment she received (another course of antibiotics and an antibacterial-anti-inflammatory cream), she was referred to the plastic surgeon (author) on the team for an excision biopsy (Figure 2). Her wound healed uneventfully, with minimal distortion of her decorative tattoo (Figure 3).

Histological analysis confirmed an infiltrating, well-differentiated squamous cell carcinoma (SCC), with all margins clear of tumour (closest margin was 5 mm). The patient will continue her follow up with the dermatologist to monitor for recurrence and new lesions on a yearly basis.

Discussion

Tattoos have always been popular, with approximately 24% of the US population having at least one tattoo.[3] While the most common long-term side-effect is regret or remorse, the risk of developing a long-term physical complication is reported as being approximately 7%.[3]

Although complications are uncommon, particularly due to the aseptic technique utilised and the use of more refined ink, a proportion of cases will develop some form of adverse event. These range from hypersensitivity reactions and acute local infections (usually Staphylococcus aureus or Streptococcus pyogenes) to more chronic conditions, such as sarcoidosis, tuberculosis and even malignancy.[1] The latter is rare, with only 23 cases of SCC developing in tattoos having been reported in a recent review.[3] Unlike this case, most cases were reported as developing years after the tattoo.[3]

Any of the aforementioned complications may result in a patient presenting to a wound care practitioner with an acute or chronic wound in a tattoo.

This case imparts some very important lessons, particularly to our wound care practitioners, who often come across atypical chronic wounds. This particular patient did not fit any of the criteria for a patient who typically develops an SCC. She was young, avoided sun-bathing and had no actinic damage. In addition, the wound developed within a new tattoo, which she had only a few weeks prior. This history would almost certainly indicate an infection or hypersensitivity reaction to the tattoo.

Fortunately, the dermatologist on the team did not continue with protracted courses of creams or antibiotics, despite the history, and an excision biopsy was requested after it was noticed that it responded poorly to these modalities. This not only avoided a lengthy course of dressing changes and experimentation with different medications but may have saved her life by avoiding metastatic SCC.

This case's history is unusual, however, and not typical of what wound care practitioners are likely to encounter in their practice with regards to malignancies. SCC's that develop in chronic wounds or scars typically develop many years following the wounding (usually more than 10–30 years) and are often associated with old burns scars/chronic wounds. These SCC's, known as Marjolin's ulcers, are more aggressive and carry a higher risk of metastasising compared to conventional SCC's.[4] It is for this reason that one should consider biopsying any ulcer that has arisen in a scar and persists for longer than three months.[5]

Conclusion

This case illustrates the importance of always suspecting malignancies in chronic wounds or scars, regardless of how rare they are or how unlikely the diagnosis may be. It must always be in the back of a wound care practitioner's mind, particularly for chronic wounds that are not responding to treatment. Failure to do so may result in a delayed diagnosis, which could adversely affect a patient's prognosis.

References

1. Serup J. How to diagnose and classify tattoo complications in the clinic: A system of distinctive patterns. Curr Probl Dermatol. 2017;52: 58-73.
2. Kluger N, Koljonen V. Tattoos, inks and cancer. Lancet Oncol. 2012;13:e161-e168.
3. Islam PS, Chang C, Selmi C, et al. Clin Rev Allergy Immunol. 2016 Apr;50(2):273-86.
4. Bazaliński D, Przybek-Mita J, Barańska B, Więch P. Marjolin's ulcer in chronic wounds - Review of available literature. Contemp Oncol (Pozn). 2017;21(3):197-202.
5. Pekarek B, Buck S, Osher L. A comprehensive review on Marjolin's ulcers: diagnosis and treatment. J Am Col Certif Wound Spec. 2011;3(3):60-4.