A fluorescing spot on the temple: a helpful reminder for a detailed history and physical exam

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Abstract

We discuss a woman with a history of non-melanoma skin cancer who presented with a new erythematous macule on her right temple. On examination with Wood lamp the well-demarcated macule fluoresced pink making neoplasm unlikely. Further history and physical examination suggested an inadvertent ink stain and the patient was spared a biopsy highlighting the importance of eliciting a good history and performing a detailed physical examination with additional tools such as a Wood lamp when necessary.

Keywords: actinic keratosis, basal cell carcinoma, pseudo-tattoo, Wood lamp

Introduction

Evaluation of a patient with a history of skin cancer oftentimes leads a physician to have a much lower threshold for biopsy. The hurried physician may also overlook the importance of a good history and physical examination. Sir William Osler, described by many as the father of modern medicine, once said "Listen to your patient; he is telling you the diagnosis." We see how this rings true in the specialty of dermatology in a unique case of a fluorescing macule on the face of our patient.

Case Synopsis

A 61-year-old year old woman with history of basal cell carcinoma presented with a new asymptomatic, well demarcated, 4×5mm, ovoid, erythematous macule on her right temple (**Figure 1**). Upon initial inspection, the macule looked concerning for an actinic keratosis or superficial basal cell carcinoma and a biopsy was considered. To get a better look at the macule the clinician used a Wood lamp to illuminate the area, which revealed a bright pink fluorescence (**Figure 2**). When we mentioned to the patient that the macule had an "ink-like" appearance, the patient recalled that she had attended Fiesta San Antonio over the weekend where she was showered in confetti from cascarones. Pieces of confetti stuck to her skin after the fiesta, but she thought she had washed them all off.

Case Discussion

Fiesta is an annual festival held in San Antonio which began in memory of the battles of the Alamo and San Jacinto. Cascarones, meaning "eggshells" in Spanish,

Figure 1. *Pink macule on right temple at presentation.*

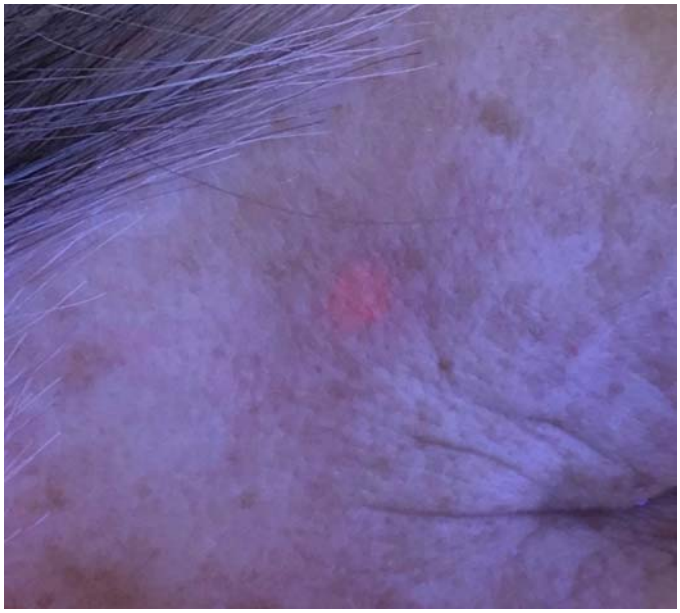

Figure 2. *Pink macule on right temple accentuated under Wood lamp.*

are hollowed-out chicken eggs that are filled with confetti or small toys and broken over the heads of patrons during carnivals or festivals to signify good luck. Originating in Spain, cascarones were filled with perfume. However, when they gained popularity in Mexico during the late nineteenth century, the tradition was changed and they were filled with confetti instead [1].

We attempted to cleanse the spot with an alcohol swab but were unsuccessful. Regardless, owing to the fluorescence seen with the Wood lamp, we were more confident that the macule was an ink stain rather than a skin cancer or precancer. The patient had two other classic appearing basal cell skin cancers on her left lateral neck and we biopsied those spots and planned to see her in two weeks for the excision, at which time we would re-evaluate the concerning macule on her right temple. When she returned for her excision, the macule had completely resolved and faded away, preventing a biopsy and potential scar on her face.

Given the extended period of time the macule adhered to the patient's skin, we conjecture the ink from the confetti could have been made from a substance with a similar chemical makeup to dihydroxyacetone (DHA). Whereas permanent tattoo ink is placed by a needle into the dermis, temporary tattoos, or pseudo-tattoos, involve staining the stratum corneum. Dihydroxyacetone (DHA) is a popular pseudo-tattoo that has grown in popularity for its use as a sunless tanning agent. This carbohydrate compound adheres with the stratum corneum by "binding to the amino terminal of the epidermal proteins" [2]. There is a chemical reaction between DHA and keratin in skin cells, which results in a visual darkening of the skin. The keratin pigments can range from yellow to brown, depending on the skin type of the individual [3, 4]. The stains typically last around two weeks as corneocytes shed with normal epidermal maturation.

Permanent markers have grown in popularity as a surgical marking device because of their ability to resist smearing or fading during surgical prep, which could lead to poor outcome in cosmetic surgery or even operation at the wrong surgical site. However, the ingredients in permanent marker typically consist of an alcohol base, usually ethanol or isopropanol, and are therefore alcohol soluble. Given that the alcohol swab was ineffective against removing the macule in our patient, we suspect that the dye in the confetti stained the skin in a mechanism similar to DHA — not a permanent marker.

The Wood lamp, invented by physicist Robert Wood in 1903, has long been used by clinicians to evaluate the skin and hair. It works by emitting light with a wavelength between 320 and 400 nm. As the light hits the skin, fluorophores on the skin surface absorb its energy and subsequently emit longer wavelengths in the visual spectrum [5]. There is a long list of uses including pigmentary disorders, bacterial infections, fungal infections, and disorders of porphyrin metabolism. It has also been used for a variety of miscellaneous uses such as identifying the presence of medications in or on the skin and detecting semen on the skin in cases of sexual assault; it has even been used as a placebo treatment for warts in pediatric patients [5, 6]. Fluorophores exist in the natural environment as seen in bacterial infections and fungal infections but are also artificially produced and used in dyes, highlighters, nail polish, or hair coloring. In the case of our patient, the dye containing fluorophores from the confetti

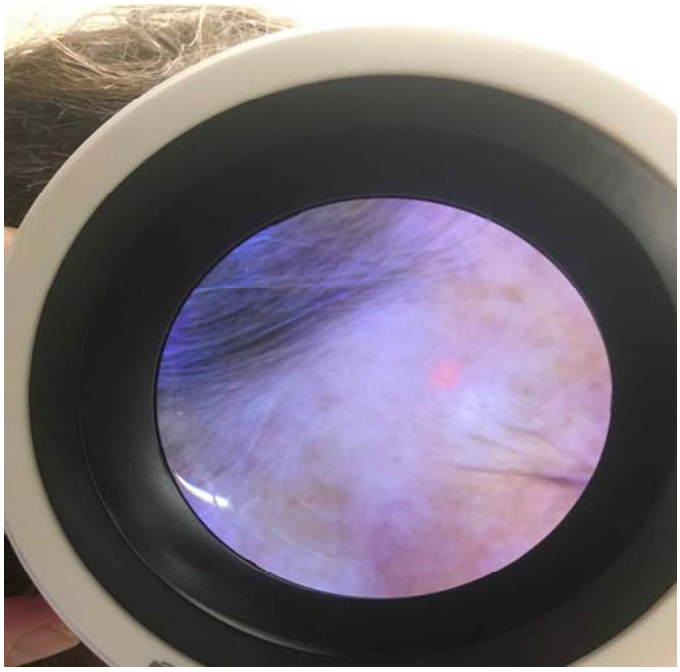

Figure 3. *Pink macule on right temple magnified with Wood lamp.*

was adherent to her skin and raised concern for possible cancer or precancer.

Conclusion

We want to highlight the importance of a detailed physical exam, which can be enhanced by a harmless Wood lamp. Also, as evidenced by this case, an accurate history is crucial and the clinician can help guide a patient to remember pertinent positives. Had the Wood lamp not been part of the examination the clinician may not have helped the patient remember her attendance of Fiesta or the cascarones that were cracked over her head. With this patient in particular, who already exhibited a history of skin cancer, a biopsy likely would have been performed (**Figure 3**).

Potential conflicts of interest

The authors declare no conflicts of interests.

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