Isotretinoin-Induced Skin Fragility in an Aerialist

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PRACTICE **POINTS**

- Isotretinoin is used to treat severe nodulocystic acne but can cause adverse effects such as skin fragility, xerosis, and poor wound healing.
- Dermatologists should inform athletes of heightened skin vulnerability while undergoing isotretinoin treatment.
- Isotretinoin-induced skin fragility involves the effects of isotretinoin on sebocytes, transepidermal water loss, and disruption of the integrity of the epidermis.

Isotretinoin is widely used for treatment of severe cystic acne; however, its use is accompanied by mucocutaneous adverse effects. The established protocol for conducting cutaneous procedures on patients undergoing current or recent treatment with isotretinoin recommends a cessation period of at least 6 months to mitigate risks for delayed wound healing and hypertrophic scarring due to medication-induced skin fragility. We present a unique case of isotretinoin-induced skin fragility resulting in blistering and erosions on the palms of a 25-year-old competitive aerial trapeze artist. This case highlights the underrecognized risk for skin vulnerability in athletes undergoing isotretinoin treatment and the importance of guiding athletes on heightened skin vulnerability during isotretinoin treatment.

Isotretinoin was introduced more than 3 decades ago and marked a major advancement in the treatment of severe refractory cystic acne. The most common adverse effects linked to isotretinoin usage are mucocutaneous in nature, manifesting as xerosis and cheilitis.[1] Skin fragility and poor wound healing also have been reported.[2-6] Current recommendations for avoiding these adverse effects include refraining from waxing, laser procedures, and other elective cutaneous procedures for at least 6 months.[7] We present a case of isotretinoin-induced cutaneous fragility resulting in blistering and erosions on the palms of a competitive aerial trapeze artist.

Case Report

A 25-year-old woman presented for follow-up during week 12 of isotretinoin therapy (40 mg twice daily) prescribed for acne. She reported peeling of the skin on the palms following intense aerial acrobatic workouts. She had been a performing aerialist for many years and had never sustained a similar injury. The wounds were painful and led to decreased activity. She had no notable medical history. Physical examination of the palms revealed erosions in a distribution that corresponded to horizontal bar contact and friction (Figure). The patient was advised on proper wound care, application of emollients, and minimizing friction. She completed the course of isotretinoin and has continued aerialist activity without recurrence of skin fragility.

Comment

Skin fragility is a well-known adverse effect of isotretinoin therapy.[8] Pavlis and Lieblich[9] reported skin fragility in a young wrestler who experienced similar skin erosions due to isotretinoin therapy. The proposed mechanism of isotretinoin-induced skin fragility is multifactorial. It involves an apoptotic effect on sebocytes,[5] which results in reduced stratum corneum hydration and an associated

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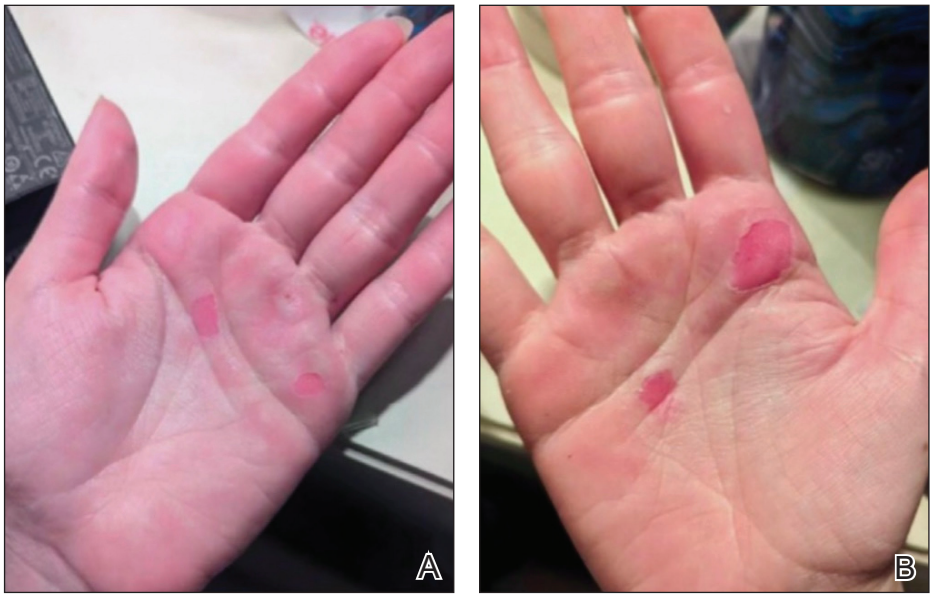

A and B, Erosions on the palms due to isotretinoin-induced skin fragility.

increase in transepidermal water loss.[6,10,11] Retinoids also are known to cause thinning of the skin, likely due to the disadhesion of both the epidermis and the stratum corneum, which was demonstrated by the easy removal of cornified cells through tape stripping in hairless mice treated with isotretinoin.[12] In further investigations, human patients and hairless mice treated with isotretinoin readily developed friction blisters through pencil eraser abrasion.[13] Examination of the friction blisters using light and electron microscopy revealed fraying or loss of the stratum corneum and viable epidermis as well as loss of desmosomes and tonofilaments. Additionally, intracellular and intercellular deposits of an unidentified amorphous material were noted.[13]

Overall, the origin of skin fragility induced by isotretinoin is supported by its effect on sebocytes, increased transepidermal water loss, and profound disruption of the integrity of the epidermis, resulting in an elevated risk for inadvertent skin damage. Patients were encouraged to avoid cosmetic procedures in prior case reports,[14-16] and because our case demonstrates the risk for cutaneous injury in athletes due to isotretinoin-induced skin fragility, we propose an extension of these warnings to encompass athletes receiving isotretinoin treatment. Offering early guidance on wound prevention is of paramount importance in maintaining athletic performance and minimizing painful injuries.

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