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Authors

Su, Jennifer J
Haidari, Wasim
Hoffman, Melissa B
et al.

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Contact dermatitis: one for the books

Jennifer J Su¹ BS, Wasim Haidari¹ BS BA, Melissa B Hoffman¹ MD, and Steven R Feldman¹⁻⁴ MD PhD

Affiliations: ¹Department of Dermatology, Center for Dermatology Research, Wake Forest School of Medicine, Winston-Salem, North Carolina, USA, ²Department of Pathology, Wake Forest School of Medicine, Winston-Salem, North Carolina, USA, ³Department of Social Sciences & Health Policy, Wake Forest School of Medicine, Winston-Salem, North Carolina, USA, ⁴Department of Dermatology, University of Southern Denmark, Odense, Denmark

Corresponding Author: Jennifer Su, BS, Department of Dermatology, Wake Forest School of Medicine, Medical Center Boulevard, Winston-Salem, NC 27157-1071, Tel: 336-716-7740, Fax: 336-716-7732, Email: su.jennifer.j@gmail.com

Abstract

Allergic contact dermatitis (ACD) is a frequent problem, often caused from repeated exposure to an object or substance related to the patient's routine activities. We present a case of a well-demarcated, erythematous, scaly plaque on a finger caused from reading with an e-book device. Although metal from mobile devices can cause ACD, mobile device cases may cause irritation or contain additives that can also cause contact dermatitis. Similar presentations of contact dermatitis may become more common as technology use increases.

Keywords: allergic contact dermatitis, contact allergy, allergen

Introduction

Allergic contact dermatitis (ACD) to metallic allergens is well-characterized, with nickel being the most common culprit [1]. Mobile devices, such as cell phones, tablets, and e-book readers, are sources of metal that people contact daily. Consumers often purchase cases to protect their devices, which subsequently may present other allergenic sources. Although cases are made from materials such as leather, vinyl, silicone, and fabric, the chemicals used to process these materials may introduce additional allergens leading to ACD. We describe a patient with a well-demarcated, erythematous, scaly plaque on a finger, which was associated with an e-book device.

Case Synopsis

The subject is an 86-year-old man who presented to the clinic with a 6-month history of a red, itchy,

irritated plaque on his left third digit (**Figure 1**). Use of over-the-counter ointments did not resolve the rash. The fixed, localized involvement suggested contact dermatitis, but the distribution did not suggest any obvious cause. Potassium hydroxide test was negative for fungus. The patient denied wearing jewelry or holding a pen or pencil with that finger. Further questioning about hobbies and other potential exposures revealed only that he is an avid reader. Further questioning revealed that he reads from an electronic device held between his fingers; the rash matched the site that the e-reader's case spine touched his finger (**Figure 2**). The patient was



Figure 1. Red, scaly plaque on left third digit.



Figure 2. Rash touches the e-reader's case while held.

counseled about avoidance and was prescribed betamethasone dipropionate 0.05% ointment to clear the rash.

Case Discussion

A patch test was not done on this patient to determine the exact cause of ACD. However, when the patient held the device as he normally does, the location of the rash came in contact with the e-reader's covering. Obtaining a thorough history of the patient's occupation and hobbies is crucial for identifying the cause of the localized rash. The reaction may have been caused by irritation from

rubbing or from allergens (dyes or preservatives) in the e-reader cover. Disperse blue 106, disperse blue 124, and para-phenylenediamine are common causes of textile dermatitis [2]. These dyes are found in dark blue, purple, brown, and black fabrics similar to the cloth used on the patient's e-reader case. A case of ACD to a silicone cell phone case has also been reported [3]. In addition to cloth, mobile device cases are also made of vinyl, leather, or silicone, which may be allergenic sources for some patients.

Conclusion

The high prevalence of mobile device usage may lead to an increase in ACD of the hands and face, especially as the younger generations age. As a result, ACD caused from mobile device cases may correspondingly become more common.

Potential conflicts of interest

Feldman has received research, speaking and/or consulting support from a variety of companies including Galderma, GSK/Stiefel, Almirall, Leo Pharma, Boehringer Ingelheim, Mylan, Celgene, Pfizer, Valeant, Abbvie, Samsung, Janssen, Lilly, Menlo, Merck, Novartis, Regeneron, Sanofi, Novan, Qurient, National Biological Corporation, Caremark, Advance Medical, Sun Pharma, Suncare Research, Informa, UpToDate and National Psoriasis Foundation. He is founder and majority owner of www.DrScore.com and founder and part owner of Causa Research, a company dedicated to enhancing patients' adherence to treatment. Jennifer J. Su, Wasim Haidari, and Dr. Hoffman declare no conflicts of interest.

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