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i. Title

Hand Leukoderma Following Allergic Contact Dermatitis from Rubber Gloves in a Health Care Worker

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iv. Acknowledgments

None

Conflicts of Interest

The authors declare no conflicts of interest.

v. Abstract and Keywords

Keywords: allergic contact dermatitis; contact leukoderma; rubber chemicals; hand leukoderma; case report

vi. Main Text

We present an atypical case of leukoderma appearing after rubber accelerator-induced allergic contact dermatitis (ACD).

Case Report

A 49-year-old female surgical scrub nurse presented with a two-month history of hand dermatitis. On examination, her hands were diffusely pink and edematous (Fig. 1). The patient attributed the flare-ups to her work since they improved when she had several days off in a row. She had never previously suffered any hand dermatitis or allergic reactions to rubber. She denied a history of atopic dermatitis or vitiligo. Prior treatments included oral antihistamines and topical and intramuscular steroids with only mild improvement.

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process which may lead to differences between this version and the [Version of Record](#). Please cite this article as doi: [10.1111/cod.13858](https://doi.org/10.1111/cod.13858)

Patch testing was performed with the North American 80 Comprehensive (NAC-80), Bakery, Fragrance, Cosmetic, and Rubber Additives series (Dormer Chemotechniques, Toronto, Canada). Test series were applied to the back using IQ Ultra Chambers (Dormer Chemotechniques, Toronto, Canada) and fixed for 48 hours. Readings were interpreted after 96 hours according to the ICDRG criteria. Positive reactions were noted to rubber accelerators N,N-diphenylguanidine 1% pet. (N,N-DPG) and 2-mercaptobenzothiazole 2% pet. (2-MBT). Given her history of flares associated with surgical glove use, these were deemed to be relevant allergens. The patient also had positive reactions to nickel, thimerosal, and gallate mix which were likely not relevant.

The patient was started on topical clobetasol 0.05% ointment followed by a short prednisone taper. Upon switching to rubber accelerator-free gloves, her hand dermatitis cleared completely. One month later, she presented with depigmented patches involving the dorsal and ventral hands and wrists involving a similar distribution to her ACD (Fig. 2). Although post-inflammatory hypopigmentation was considered as a possible diagnosis, her islands of repigmentation were more suggestive of leukoderma. She was diagnosed with contact leukoderma and started on topical tacrolimus 0.1% ointment twice daily. Two months later, her leukoderma showed noticeable improvement.

Discussion

Rubber accelerators (i.e. thiurams; carbamates; 2-MBT; N,N-DPG) are commonly found in surgical and medical exam gloves; they are a frequent cause of ACD in health care workers. Cases of rubber-induced leukoderma have been reported in the manufacturing setting usually due to phenols such as monobenzylether of hydroquinone (MBEH), which has been phased out of rubber manufacturing in the United States [1]. However, our patient had reactions to N,N-DPG and 2-MBT, neither of which were phenols. Furthermore, most cases of leukoderma following rubber exposure are not preceded by ACD [2]. Only two cases of rubber-induced ACD followed by leukoderma have been reported in the literature. In 1951, Botnivick published a case of post-ACD leukoderma in a woman using rubber gloves containing MBEH [3]. In 1996, a firefighter presented with ACD triggered by the rubber accelerators in his gear, followed by depigmentation in a similar distribution [4]. Cases of post-ACD leukoderma have also been reported with colophony, pine sawdust, and epoxy resin [5].

To our knowledge, our patient is the first published case of leukoderma appearing after resolution of rubber accelerator-induced ACD in a health care worker. This phenomenon is likely under-reported given the prevalence of ACD to rubber gloves. New onset vitiligo on the hands of a healthcare worker should prompt evaluation for possible rubber ACD and subsequent avoidance.

vii. References

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viii. Tables

N/A

ix. Figure Legends

Figure 1

Erythematous dermatitis with edema and pruritus extending to the wrist. Symptoms developed upon exposure to sterile and non-sterile gloves.

Figure 2

Leukoderma developed following the resolution of rubber-induced allergic contact dermatitis (ACD). Depigmentation margins extend to the wrist.

X. Appendices

N/A



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