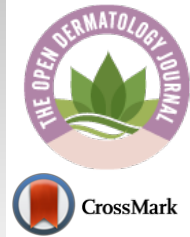




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EDITORIAL

Transference in Contact Dermatitis: New Name for Underappreciated Cause of Eczema

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Transference is the action of conveying something. In dermatology, that would be transferring irritating and/or allergic substances from the hands to other body parts. The fact that this specific area of the body itches leads to a more repetitive transportation of these chemicals to that specific area.

In an analogous situation, bacterial pathogens have been shown to be transferred *via* contaminated hands of healthcare workers, such as in neonatal patients [1]. In another outbreak, *Malassezia pachydermatis* was transmitted from a nurse's pet dogs to infants in an intensive care nursery *via* the hands of the nurse [2]. Other studies have shown bacterial transfer from moist fabrics [3]. Friction increased the level of transfer from fabrics to finger pads as much as fivefold [3].

Possibly, the best way to demonstrate the importance of transference is by thoroughly examining the example of nickel dermatitis. Nickel is a malleable, silvery white metal that is capable of taking a high polish, imparting durability and hardness to metal objects, particularly the precious metals and stainless steel. It is used widely in metal production and humans are exposed to the metal almost continuously throughout the day. It is also used extensively in industry.

Nickel also is one of the most common causes of allergic contact dermatitis. Sweating has a pronounced effect on dermatitis in nickel-sensitive individuals. The chloride radical in sweat dissolves the metallic nickel from nickel-plated objects, permitting the soluble salts of this metal to act. Indeed, perspiration, pressure and friction affect the occurrence and severity of the reaction with nickel in sensitized individuals [4].

A puzzling feature of nickel dermatitis is that the eruption occurs in three forms [4]. First, there is the area in direct contact with the metal. Secondly, in some patients, a symmetrical outbreak occurs, often involving the extremities.

This has been considered an id phenomenon in the past [4]. Occasionally one sees cases in which a dermatitis appears that appears to have no relationship to nickel sensitivity. In my humble opinion, the answer to these last two categories is transference from the hands to other body parts. The palms are so thick that they are almost impervious to contact allergies, but they can carry the metal to other body parts by transference. Such transference would be exacerbated if the fingers were transpiring.

This method of conveyance of nickel by means of hand contact is poorly appreciated. For example, the American Academy of Dermatology [5] and the American Academy of Allergy, Asthma, and Immunology [6] both only discuss direct contact with nickel in disease causation. The North American Contact Dermatitis Group also failed to acknowledge this form of disease transfer [7]. Even a book released this year on the topic suggests that nickel dermatitis only occurs by direct contact with the metal, period [8]. Without an understanding of this transference, part of the treatment of this condition is not fully addressed [7 - 9]. Transference has been discussed for eyelid dermatitis [10].

The most definitive work in transference is by Isnardo *et al.* [11]. Using mass spectrometry, they documented that high concentrations of nickel can be transferred to the fingers from touching metal objects; additionally, by touching the face with those hands, sufficient quantities of nickel are achieved to cause allergic dermatitis in people with nickel allergy. Their study gave more credence to previous reports of nickel dermatitis after handling metal objects such as coins [12], keys, and mobile phones [13]. The authors [11] found that hand-to-face transference of metal is much more likely to be the cause of facial rashes in such patients than finding nickel in their cosmetic products [14].

In short, transference is ectopic allergic dermatitis due to conveyance of a substance from the patient's hands to some other body part with otherwise no direct contact to metal. In

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contrast to introducing an allergenic product directly to the eyes, face, or extremities through conscious application of a product to these areas, the patient introduces the allergen inadvertently when touching or rubbing the eyes, face, or extremities. In a patient who has naturally sensitive skin, the involvement can be extensive.

My clinical pearl is to consider patients that whose palms of the hands have thick skin and do not develop allergic reactions to nickel. However, after touching something metallic (like utensils, pens, cell phones, or exercise equipment), one has to avoid transferring this from the hands to other body areas. Patients must wash their hands, free of this nickel from handling metal objects prior to touching other body parts. I have treated patients with extensive atopic dermatitis, as well as erythroderma, in which patch testing revealed that only one allergen (namely nickel) respond to these directives.

The same scenario also applies to other contact irritants and allergic substances. Directing patients to avoid hand to skin contact will diminish the transference and can be curative by itself. Transference should be a basic tenet in the treatment of contact dermatitis.

CONFLICT OF INTEREST

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DISCLAIMER

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