

Occupational Contact Dermatitis in a Nurse due to Thimerosal

Adolfo S. Yasky MD¹, Arnona Eyal MD¹, Arik Kappel MD¹ and Dan Slodownik MD²

¹Department of Occupational Medicine, Southern District, Clalit Health Services, Beer Sheva, Israel

²Department of Dermatology, Hadassah University Hospital and Hebrew University Medical School, Jerusalem, Israel

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Contact dermatitis is an inflammatory reaction of the skin caused by irritants or allergens. The primary symptom is pruritus, with skin appearance ranging from erythema to blistering and ulceration. It occurs mostly on or near the hand but it can occur on any exposed skin surface. Diagnosis is based on exposure history, examination and patch testing. Treatment entails antipruritics, topical corticosteroids and avoidance of causes.

Patch testing is a well-established method of diagnosing allergic contact dermatitis of delayed-type hypersensitivity (type IV reaction). There are two test systems: the original test, in which the allergens, patches and tapes are applied separately (Finn Chambers[®] SmartPractice, Canada); and the modern ready-to-use system, in which only a covering material has to be removed before the test is applied. The Thin-layer Rapid Use Epicutaneous test (TRUE Test System[™], MEKOS Laboratories, Denmark) consists of a surgical tape/plaster (patch) containing individual allergens or allergen mixes. The skin reactions should be read 72 to 96 hours after application. This time span is necessary for allergic reactions to develop fully and for irritant reactions to subside. Readings at 48 hours are preliminary and should be confirmed definitively at 72–96

hours. Diagnostic patch testing, properly performed and interpreted, can be used to identify the etiological agent in acute or chronic dermatitis.

Thimerosal, a preservative in vaccines, cosmetics, topical medications and oils to prevent fungi growth, has been in use since the 1930s. It contains ethyl mercury radicals attached to the sulfur group of thiosalicylate [1].

The frequency of positive patch test reactions to thimerosal varies between studies. The high frequency is attributed to the widespread use of vaccines containing thimerosal [2]. There are reports of thimerosal sensitization in chemists, laboratory technicians and health care workers. Contact with disinfectants, metals and rubber are the most frequent sources of allergic contact dermatitis among nurses. According to the North American Contact Dermatitis Group, thimerosal is the fifth most frequent allergen and nickel is the most frequent cause of contact allergy [3]. Among thimerosal-sensitive patients the most common site for contact dermatitis is the face, followed by the palms and eyelids. A case was reported of contact dermatitis of the eyelids that occurred in an ophthalmology assistant due to thimerosal in contact lens fluid. We present another case of occupation-related dermatitis.

PATIENT DESCRIPTION

A 39 year old nurse, with a history of atopy, had been employed at the Israel Ministry of Health since 1998. Her tasks included nursing duties with babies and pregnant women, including administe-

ring injections and, in particular, vaccinating babies. She did not wear latex gloves during these procedures.

She was referred with a 12-year history of contact dermatitis involving her hands, especially the radial aspect of the fingertips of the second and third fingers and the ulnar aspect of the thumbs. The rash was partially and temporarily resolved during a long period away from work.

She was patch tested with the TRUE Test[™] applied to the upper back. The test was read on day 2 (48 hours) and day 3 (72 hours). She reacted to thimerosal (+++/+++) and nickel (+++/+++). Three months avoidance of the offending allergens by using vinyl gloves when vaccinating babies resulted in a total resolution of her dermatitis.

COMMENT

Thimerosal is a common allergen, and although occupational allergy to thimerosal is rare, some cases of thimerosal allergy have been found among health care workers. Concomitant reactions to nickel were described in a previous report [4].

The case presented here illustrates the importance of considering thimerosal when encountering contact dermatitis, in contrast to recent studies suggesting that most of the positive reactions to thimerosal are irrelevant [5].

Corresponding author:

Dr. A.S. Yasky

Dept. of Occupational Medicine, Southern District, Clalit Health Services, 6 Joseph Klausner Street, Beer Sheva, Israel

Phone: (972-8) 624-3222

Fax: (972-8) 624-3238,

email: yaskyse@clalit.org.il

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