

Allergic contact dermatitis due to rubber bands in a packing worker

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Case Report

A 47-year-old non-atopic man presented with a chronic erythematous-desquamative dermatitis involving the dorsum of the thumb of both hands, which began 3 years ago.

The man worked in a drug warehouse and his duties compelled him to use rubber bands to tie up drug packages, all day long, in the repetitive assembly (Fig. 1).

The stop–restart test was positive; in fact the patient showed improvement after weekends or during holidays.

Patch tests with the Italian standard SIDAPA series showed positive reactions to colophony (+D3) and thiuram mix 1% pet (+D3). Patch tests with fragments of rubber bands showed an allergic reaction after 72 hr (+D3). Further patch tests performed with rubber, glues, and plastic series only gave a positivity to tetramethylthiuram monosulfide 0.25% pet (+D3) in the rubber series.

Interestingly, the eczematous reaction to thiuram mix in the SIDAPA series was still persistent after 1 month and flared up when the tetramethylthiuram monosulfide in the rubber series became positive.

Discussion

Thiurams are well-known accelerators in the vulcanization process of rubber products, both latex and synthetic. In Europe, thiurams in gloves are common allergens with rates of

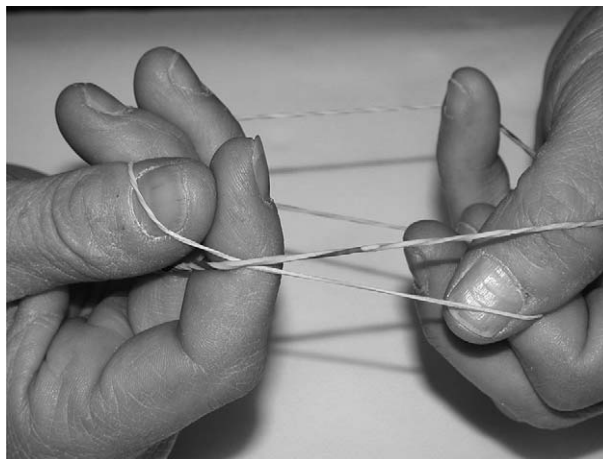


Fig. 1. Erythematous-desquamative dermatitis of the hands in a packing worker.

sensitization ranging from 2% to 25% (1–3). Sensitization to these compounds is a common work-related problem, especially for the recent increase in use of latex gloves in healthcare workers and also in food workers, such as bakers, cooks, and butchers (4, 5). However, rare professional sources of thiuram allergy are reported in workers not wearing gloves: a painter (TEDT-based bactericide in water-based paint) (6), a farmer (boots and seed dressings) (7), a golfer (fungicide) (8) and a shepherdess (lambing ring) (9).

A professional case of allergic contact dermatitis due to thiuram in rubber bands has been previously reported in postal workers (10).

In our case, the clinical pattern and the positive stop–restart test pointed to a work-related contact dermatitis. Positive reactions to both thiuram mix (1% pet) in the SIDAPA series and tetramethylthiuram monosulfide (0.25% pet) in the rubber series supported the diagnosis, even though chemical analysis was not performed to detect the exact composition of the rubber bands.

In case of allergic contact dermatitis due to some thiuram compounds, it is useful to advise patients to avoid rubber products containing thiurams in general. In fact, a theoretical cross-reactivity from the different components of thiurams is plausible. Nevertheless, in the opinion of several authors, a definite distinction between cross-reactivity and simultaneous sensitization to different thiurams cannot be made (1).

The patient did not show a positive reaction to tetraethylthiuram disulfide, tetramethylthiuram disulfide,

and dipentamethylenethiuram disulfide, which had been singularly tested in the rubber series (0.25% in pet). In some countries the individual components are tested at 1% pet. In literature, some authors compared both concentrations of individual thiurams 1% in pet and 0.25% in pet in patch tests, showing only a slight increase in positive reactions with the higher concentration, without any statistical significance. They concluded that both concentrations have an equal diagnostic value in patch testing (11).

We reported this singular case of sensitization to thiurams in a packing worker that did not use any protective gloves, in spite of the fact that occupational allergic contact dermatitis to thiurams, described in literature, is generally caused by the use of gloves.

References

1. Lerbaek A, Menné T, Knudsen B. Cross-reactivity between thiurams. *Contact Dermatitis* 2006; 54: 165–168.
2. Gibbon K L, McFadden J P, Rycroft R J, Ross J S, Chinn S, White I R. Changing frequency of thiuram allergy in health-care workers with hand dermatitis. *Br J Dermatol* 2001; 144: 347–350.
3. Saunders H, Watkins F. Allergic contact dermatitis due to thiuram exposure from a fungicide. *Australas J Dermatol* 2001; 42: 217–218.
4. Clayton T H, Wilkinson S M. Contact dermatoses in health-care workers: reduction in type I latex allergy in a UK centre. *Clin and Exp Dermatol* 2005; 30: 221–225.
5. Bauer A, Geier J, Elsner P. Type IV allergy in the food processing industry: sensitization profiles in bakers,

- cooks and butchers. *Contact Dermatitis* 2002; 46: 228–235.
6. Fisher A A. Paint dermatitis: the role of patch testing series in detecting contact dermatitis to paints. *Cutis* 1995; 56: 16.
 7. Spiewak R. Kobnerizing occupational contact allergy to thiuram in a farmer with psoriasis. *Contact Dermatitis* 2004; 51: 214–215.
 8. Shelley W B. Golf course dermatitis due to thiram fungicide. *JAMA* 1964; 188: 415–417.
 9. Bransbury A, Burge S. Rubber allergy in a shepherdess. *Contact Dermatitis* 1998; 39: 45.
 10. Ellison J M, Kapur N, Goldmith P C. Allergic contact dermatitis from rubber bands in 3 postal workers. *Contact Dermatitis* 2003; 49: 311–312.
 11. Geier J, Frosch P J, Schnuch A et al. Patch test with thiurams at 0.25% pet. and 1% pet. are of equal diagnostic value. *Contact Dermatitis* 2002; 46: 258–261.

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