

30 patients patch tested for leg or foot dermatitis had the modified rosin included as well as colophony. Positive reactions were seen in 5 cases at D2 and D4 (Table 2).

Discussion

It has been difficult to find any lined shoes free from such tackifiers. Despite modification, there is still unmodified rosin present in such material. Oxidation products of abietic and dehydroabietic acids are thought to be the allergens (5–8). The presence of MPA in the tackifier indicates that unesterified Diels-Alder adducts of rosin are also present. Our patient declined further patch testing with MPA, so the contribution of MPA to her footwear dermatitis remains unknown. Esters of MPA with polyols such as pentaerythritol are unlikely to be contact allergens (9).

In the further study of 30 patients, 4 reacted to unmodified rosin (colophony) alone and 1 reacted to both modified and unmodified rosin. Shoe tackifiers should therefore be considered as sources of colophony allergens. Furthermore, 2 studies (10, 11) have identified patients with positive reactions to modified rosin products, such as MPA, who did not react to unmodified rosin in the standard series. In patients where footwear dermatitis is strongly suspected, but colophony is negative, patch testing to MPA should therefore be considered.

References

1. Gåfvert E. Allergenic components in modified and unmodified rosin; chemical characterization and studies of al-

- lergenic activity. *Acta-Dermato-venereologica* 1994; suppl. 184: 1–36.
2. Ruzicka L, Ankersmith P J, Frank B. Polyterpene und polyterpenoide LXXIII. Anlagerung von Maleinsäure-anhydrid an Abietinsäure und Dextro-pimarsäure. *Helv Chim Acta* 1932; 15: 1289–1294.
3. Karlberg A-T, Gåfvert E, Hagelthorn G, Nilsson L G. Maleopimaric acid: a potent sensitizer in modified rosin. *Contact Dermatitis* 1990; 22: 193–201.
4. Gåfvert E, Shao L P, Karlberg A-T, Nilsson U, Nilsson J L G. Maleopimaric acid – a contact allergen in rosin modified with fumaric acid. *Nordic Pulp Paper Res* 1995; 10: 139–144.
5. Karlberg A-T, Bergstedt E, Boman A et al. Is abietic acid the allergenic component of colophony. *Contact Dermatitis* 1985; 13: 209–215.
6. Karlberg A-T, Boman A, Hacksell U, Jacobsson S, Nilsson J L G. Contact allergy to dehydroabietic acid derivatives isolated from Portuguese colophony. *Contact Dermatitis* 1988; 19: 166–174.
7. Karlberg A-T, Bohlinder K, Boman A, Hacksell U, Hermansson J, Jacobsson S, Nilsson J L G. Identification of 15-hydroperoxyabietic acid as a contact allergen in Portuguese colophony. *J Pharm Pharmacol* 1988; 40: 42–47.
8. Gåfvert E, Shao L P, Karlberg A-T, Nilsson U, Nilsson J L G. Contact allergy to rosin acid hydroperoxides. Hapten binding via free radicals and epoxides. *Chem Res Toxicol* 1994; 7: 260–266.
9. Lepoittevin J-P, Brel V. Chemical basis. In: Lepoittevin J-P, Basketter D A, Goossens A, Karlberg A-T (eds): *Allergic contact dermatitis. The molecular basis*. 1998: 19–42.
10. Gåfvert E, Bordalo O, Karlberg A-T. Patch testing with allergens from modified rosin (colophony) discloses additional cases of contact allergy. *Contact Dermatitis* 1996; 35: 290–299.
11. Kanerva L, Gåfvert E, Alanko K, Estlander T, Jolanki R. Patch testing with maleopimaric acid in an occupational dermatology clinic. *Contact Dermatitis* 1998; 39: 329–330.

Localized dermographism: a differential diagnosis of latex glove allergy

K. F. THOMSON AND S. M. WILKINSON

Leeds General Infirmary, Great George Street, Leeds LS1 3EX, UK

Key words: natural rubber; latex allergy; localized dermographism; gloves; differential diagnosis; health care workers; occupational. © Munksgaard, 1999.

Urticaria from rubber gloves was first described in 1979 (1) and has since become a frequent cause of referral of hospital personnel to dermatology departments. We prick test such patients with natural rubber latex (NRL) and latex extract (ALK – Abello, Hørsholm, Denmark), and also patch test them with NRL.

Case Reports

Case no. 1

A 29-year-old female renal physician gave a history of recurrent itching and inflammation of both hands exacerbated by wearing latex gloves. Patch tests were performed to a standard and rubber series. Latex patch test

and prick test were both negative. Clinical examination revealed marked dermographism.

Case no. 2

A 26-year-old renal nurse presented with a 4-month history of inflammation of both hands and wrists occurring after wearing latex gloves. Patch tests to standard and rubber series and samples of latex gloves were negative. A latex prick test was also negative. On examination, dermographism was demonstrated.

Case no. 3

A 41-year-old intensive care nurse gave a 2-month history of intermittent itching of both hands and wrists occurring only at work. Patch tests were performed to a

standard and rubber series. A positive reaction was seen to nickel, but a latex patch test was negative. A latex prick test was negative. Clinical examination revealed dermatographism.

Discussion

Although the prevalence of latex allergy within some studies has been put at around 5% (2, 3), many individuals with symptoms suggestive of latex allergy are negative on patch and prick testing (3).

Dermographism is a physical urticaria, pressure on the skin resulting in a wheal, and may simulate all other types of urticaria (4). Its prevalence in the general population is around 4% (5). Although often generalized, it may also occur in a localized form at sites of prick tests, insect bites and fixed drug eruptions (5). It has also been described as a cause of post-coital vulvodinia and dyspareunia (6), where it may be confused with condom allergy. As well as the 3 patients described here, an earlier report by Armstrong et al. (7) describes a laboratory worker who was diagnosed as having glove-induced physical urticaria.

Dermographism is most commonly precipitated by pressure or shearing forces (4), both of which might easily be produced by the recurrent application and removal of tight-fitting surgical gloves. All the above patients with localized dermatographism of the hands found their symptoms exacerbated by the putting on and removal of

gloves and all were in jobs where the wearing of gloves was a regular occurrence.

Previously suggested differential diagnoses include non-immunological urticaria due to sorbic acid, immediate-type allergy to rubber additives, a granulomatous response to the cornstarch used in powdered gloves, and contact allergy to corn starch (8).

References

1. Nutter A F. Contact urticaria to rubber. *Brit J Dermatol* 1979; 101: 597–598.
2. Turjanmaa K. Incidence of immediate allergy to latex gloves in hospital personnel. *Contact Dermatitis* 1987; 17: 270–275.
3. De Groot H, De Jong W, Duijster E et al. Prevalence of natural rubber latex allergy (Type I and Type IV) in laboratory workers in The Netherlands. *Contact Dermatitis* 1998; 38: 159–163.
4. Wong R C, Fairley J A, Ellis C N. Dermographism: a review. *J Am Acad Dermatol* 1984; 11: 643–652.
5. Kirby J D, Mathews C N A, James J et al. The incidence and other aspects of factitious whealing. *Brit J Dermatol* 1971; 85: 331–335.
6. Lambiris A, Greaves M W. Dyspareunia and vulvodinia: unrecognised manifestations of symptomatic dermatographism. *Lancet* 1997; 349: 28.
7. Armstrong D K B, Smith H R, Rycroft R J G. Glove-related hand urticaria in the absence of Type I latex allergy. *Contact Dermatitis* 1999; 41: in press.
8. Warshaw E M. Latex allergy. *J Am Acad Dermatol* 1998; 39: 1–24.

Active sensitization to toluene di-isocyanate

CHRISTOPHE-J. LE COZ¹, SUZANNE EL ABOUBI¹ AND CHRISTINE BALL²

¹Consultation de Dermato-Allergologie, Clinique Dermatologique des Hôpitaux Universitaires de Strasbourg, 1 Place de l'Hôpital, F-67091 Strasbourg; ²Cabinet de Dermatologie, 5 Quai Koch, F-67000 Strasbourg, France

Key words: active sensitization; toluene di-isocyanate; patch testing technique. © Munksgaard, 1999.

Case Report

A 48-year-old man was referred for facial seborrhoeic dermatitis and a chronic eruption of the dorsum of the hands and forearms. He had no past history of allergy and worked as an 'office-boy' for a medical laboratory. He had initially been patch tested 3 years before with the European standard series, for the same reasons, when positive reactions to PPD and benzocaine, both ++, had not been considered relevant. Since that time, he had applied to the upper limbs various antiseptics, non-steroidal anti-inflammatory drugs (NSAIDs) and corticosteroids daily for 1 year. He blamed the use of a plastic car polish and a liquid medicated soap for the relapse of his dermatitis.

He was patch tested by the Finn Chamber technique on the upper back with several excipients, antiseptics and preservatives, and a plastics and glues series (Trolab[®], Hermal, Reinbek, Germany & Chemotechnique

Diagnostics[®], Malmö, Sweden). We added tixocortol pivalate, budesonide and hydrocortisone 17-butyrate, his own topicals and the plastic car polish as is, in a closed and in a semi-open test. 2 sets were performed with the topical NSAIDs, one being removed and irradiated after 2 days (D2) with UVA 10 J/cm². Patch tests at D2 and D3 showed doubtful (?+) reactions to the NSAID top-

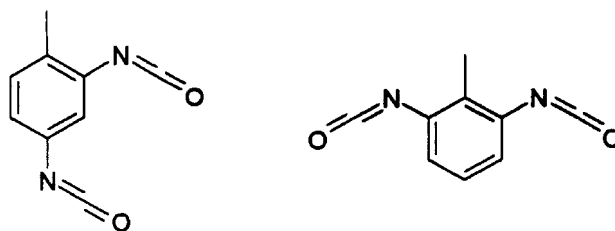


Fig. 1. Toluene 2,4-di-isocyanate and toluene 2,6-di-isocyanate.