

CORRESPONDENCE

Allergic contact dermatitis in a volleyball player due to protective adhesive taping

An 18-year-old girl developed an eczematous reaction on the back and palmar surface of the third and fourth fingers of her left hand that relapsed after each volleyball training or match. Upon careful questioning the patient reported that every time she played volleyball she wore a cloth protective adhesive tape on her fingers to make them a little stronger (figure 1).

Patch tests were carried out. Reading was performed after two (2D), three (3D) and five days (5D) according to International Contact Dermatitis Research Group recommendations [1]. An allergic reaction to colophony 20% pet. (++2D, ++3D, ++5D) was observed as well as to a small piece (about 2 cm²) of the adhesive finger taping (+2D, ++3D, ++5D). The composition of the tape was analyzed: the components were extracted and subsequently separated by thin-layer chromatography (TLC). TLC was also performed using the standardized allergens colophony 20% pet. and abietic acid 10% pet. Both for the colophony and the mixture of compounds from the tape, the TLC showed a spot identical to the abietic acid spot, confirming the presence of abietic acid in the patient's tape. Abietic acid 10% pet. and colophony 20% pet. and the mixture of compounds derived from the tape were also subjected to high-pressure liquid chromatography (HPLC). Abietic acid derived from both abietic acid 10% pet. and from colophony 20% pet. gave the same peak as the tape. Further confirmation that the compound isolated from the tape by HPLC was in fact abietic acid was supplied by mass spectrometry.

Colophony is a well known allergen, whose prevalence of sensitization among dermatitis patients ranges from 2% to

6%, with female dominance [2, 3]. Colophony is a complex mixture and consists of about 90% resin acids, while the remaining 10% is known as neutral fraction and is rarely sensitizing. Abietic acid is the main component of colophony. It is readily oxidized by air and its oxidation products are the principal agents responsible for the allergenic effect [2, 3]. Properties of natural or unmodified colophony (UC), can be modified by industrial chemical processes such as esterification, hydrogenation, Dies-Alders reaction [4]; the resulting products are mixtures of new allergens, known as modified colophony (MC). All types of MC contain a residual percentage of UC [4], so when sensitization to MC occurs, the patient may react only to UC, only to MC or to both MC and UC. In this last case, the patient is considered sensitized to different allergens as no cross-reaction seems to occur [4]. Although most of the colophony used today is MC, UC is the screening allergen currently used in standard series for patch testing [5, 6].

Colophony is a well-recognized cause of allergic contact dermatitis (ACD) in athletes because of its use in many sports (bowling, baseball, gymnastics, etc.) to enhance grip and it represents a known cause of ACD to adhesive medical tapes. In spite of this, ACD to colophony from protective adhesive finger taping used by volleyball players does not appear in literature. It may be argued that the actual occurrence of ACD to colophony contained in protective adhesive finger taping could be underestimated as many cases may be misdiagnosed and patch tests are not always performed. Furthermore newer forms of finger support made of more advanced materials have become available and may sometimes take the place of older types of adhesive tape, like the one we analysed. In any case, as colophony is used in sports equipment, it may still cause ACD which is not diagnosed because standard patch tests only containing UC are performed in athletes who may only be sensitized to MC. ■

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Figure 1. Protective adhesive tape for fingers in a volleyball player.

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