

mon cause of contact sensitivity, whereas contact allergic reactions due to rubber in sports equipment are rare.

Case Reports

Case no. 1

A 46-year-old female patient was referred with itchy, erythematous, and oedematous reaction of the hand after she had done exercises with a gymnastics band made of rubber. The eczema persisted for a few days, and after she has used the band again, the reactions were even stronger.

Case history revealed that already 20 years ago erythematous and itchy hand eczema had developed, after wearing rubber latex gloves.

Patch tests were performed with a standard series and a rubber series and showed a 1+ positive reaction to Thiuram-Mix. Skin prick test and specific immunoglobulin E for latex were negative.

Case no. 2

An 18-year-old female patient developed eczematous lesions on the back, below the shoulder plates, and at the neck, after she had worn a bikini. The lesions only appeared at skin areas which had contact with the rubber bands of the bikini, whereas the skin areas which had contact with the fabric of the bikini remained unaffected. This suggests that the contact allergic reaction is caused by the rubber-containing bands of the bikini.

Patient's history revealed that 2 years ago similar lesions appeared submammary, after she had worn a sports bra. A few years ago the patient suffered from eczema of the face. She reported that these lesions appeared after she had played basketball and assumed an allergen transfer from her contaminated hands to her face.

The patient was patch tested to a standard series and a rubber series and showed a 3+++ reaction to dibenzothiazyl disulfide, 2++ positive reactions to mercaptobenzothiazole, morpholinomercaptobenzothiazole, *N*-cyclohexylbenzothiazolesulfenamide, and 1+ positive reactions to *N,N'*-diphenyl-*p*-phenylenediamine and Thiuram-Mix.

Case no. 3

A 31-year-old healthy man with no previous history of contact allergy presented with erythematous and

Allergic contact dermatitis due to rubber in sports equipment

Contact Dermatitis 2007: 57: 131–132

Katharina Moritz, Gabriele Sesztak-Greinecker, Felix Wantke, Manfred Götz, Reinhart Jarisch and Wolfgang Hemmer

FAZ – Floridsdorf Allergy Center, A-1210 Vienna, Austria

Key words: bikini dermatitis; contact allergy; gymnastics band; rubber allergy; sports equipment.

Rubber is a widespread substance used for sports equipment, because of its properties of extensibility, stretchability, and toughness. Rubber is a com-

scaly itching lesions at both knees. He reported that the eczema firstly appeared at the sixth day of a motorbike trip where he had worn protective clothing with integrated knee caps, made of rubber.

Patch tests were performed with a standard series and a rubber series, and left occlusive for 72 hr. Positive reactions were obtained for *N*-isopropyl-*N'*-phenyl-*p*-phenylenediamine (IPPD) (2++ positive reaction). Patch testing with a rubber piece of the knee protector as is showed a very strong, bullous, and exsudative 3+++ positive reaction.

Discussion

Rubber chemicals are a common cause of occupational contact dermatitis. Among the numerous chemical additives in rubber products the vulcanizing and compounding agents, thiurams, carbamates, thiourea derivatives, and mercapto derivatives are the main contact sensitizers.

Allergic reactions including contact dermatitis have been reported in athletes (1). Swimmers wearing neoprene suits (2), bikinis (3), and swimming goggles (4), football players and cyclists, who had close contact to rubber in their sports equipment, developed eczematous skin lesions. Allergic contact dermatitis due to thiurams and mercaptobenzothiazole was prevalent (5).

In all of our 3 cases there was an obviously pre-existing sensitization to rubber compounds. Only in case no. 1 the rubber gloves might be detected as the sensitizing agent.

During sports activities the release of sensitizing compounds from sports equipment may be facilitated by sweating, local heat, and physical abrasion.

Today's ever increasing sport activities may be accompanied by a rising amount of contact allergies. For the new wellness trend sport activities a multiplicity of utilities are required. Untersmayr et al. (6) demonstrated that latex allergic patients have a solid risk to develop allergic reactions during sports with gymnastic rubber bands. They showed that the allergic reactions due to the rubber band were a type I reaction of hypersensitivity, whereas we report for the first time rubber bands causing type IV contact allergic reactions.

Patients will increasingly be confronted with rubber also in their lei-

sure time when performing sports, and as a consequence contact allergies due to rubber in sports equipment might play a more important role in the future.

References

1. Grebe W. Contact allergy and sport. *Arb Paul Ehrlich Inst Georg Speyer Haus Ferdinand Blum Inst Frankf A M*, 1985; 79: 25–29.
2. Boehncke W H, Wessmann D, Zollner T M. Allergic contact dermatitis from diphenylthiourea in a wet suit. *Contact Dermatitis* 1997; 36: 271.
3. Jung P, Sesztak-Greinecker G, Wantke F, Götz M, Jarisch R, Hemmer. Bikini dermatitis due to mercaptobenzothiazole. *Contact Dermatitis* 2006; 54: 345–346.
4. Vaswani S K, Collins D D, Pass C J. Severe allergic contact eyelid dermatitis caused by swimming goggles. *Ann Allergy Asthma Immunol* 2003; 90: 672–673.
5. Ventura M T, Dagnello M, Matino M G, Di Corato R, Giuliano G, Tursi A. Contact dermatitis in students practicing sports: incidence of rubber sensitisation. *Br J Sports Med* 2001; 35: 100–102.
6. Untersmayr E, Lukschal A, Hemmer W, Jarisch J, Scheiner O, Jensen-Jarolim E. Exercising with rubber bands is a risk factor for latex-allergic patients. Congress EAACI, Vienna, 2006; Abstract no. 1147.

Address:

Katharina Moritz
FAZ – Floridsdorf Allergy Center
Franz Jonas Platz 8/6
A-1210 Vienna
Austria
Tel: +43 1 2702541
Fax: +43 1 270254278
e-mail: science@faz.at