

USE OF NEW "BARRIER SOCKS" IN CONTACT ALLERGIC DERMATITIS

F. Borghesan (1), M. Bellotti (2)

We present the case of a fifty-year-old construction worker with contact allergic dermatitis in his feet. Given the limited results obtained with a costly topical therapy, we tried, for first time, using completely breathable "barrier socks", which solved the persistent problem in a matter of days. In addition to the improvement in the patient's quality of life and the renewed possibility of his wearing protective shoes, a net reduction in the costs incurred with topical therapy was also obtained.

contact allergic dermatitis.

CASE REPORT

We present the case of a 50-year old construction worker, from a mountainous area of the Veneto, affected by contact allergic dermatitis in the feet.

The patient had been suffering from extremely itchy erythematous vesicular lesions on his toes and on the upper part of his feet for approximately 4 years. At first these lesions tended to worsen only when he wore his protective footwear, but they subsequently became perennial. The GP prescribed topical treatment with a cortisone-based cream, but achieved only partial results.

The patient then reported to a Dermatologist who made a diagnosis of probable contact allergic dermatitis and performed patch test (Rapid Patch Test by Alk-Abellò) which proved to be positive for potassium bichromate (++) and nickel sulphate (++).

Since potassium dichromate is often present in clothing and shoes (1, 2) it was strictly recommended that the patient should avoid contact with shoes, cement (another source of potassium bichromate) and with metal buckles, and a second topical therapy consisting of steroids and antibiotics was prescribed. Given the persistence of the symptoms (the patient had not changed profession), he reported to our surgery for a further medical examination. The physical examination revealed serious exudative dermatitis with widespread lesions due to foot scratching. Given

that the skin lesions were present only on the upper part of the foot it was considered unnecessary to perform skin tests for type 1 allergies. After an initial 8-day oral treatment with steroids (Prednisone 12,5 mg) and antibiotics (Ceftibuten 400 mg) (3), the patient was advised to apply a barrier cream every 2-3 hours, to wear Dermasilk® therapeutic undersocks (4), to take antihistamine drugs daily (Cetirizine 10 mg) in order to control the scratching (5), and to use a mild dermatologically tested detergent. Despite the patient's scrupulous compliance with the therapy, the results obtained after a 3-month period (check-up) were still only partial. He was then told to wear only canvas shoes and a cortisone cream (Fluticasone propionate 0.05%) was added to the other treatments, to be applied in 7-day cycles twice a month.

At the next check-up (two months later), the results of the treatment seemed to be only partial, the patient had difficulty in using the cortisone cream in cycles, instead needing to use it on an almost daily basis. His quality of life was compromised not only due to the pruritus, but also due to the interruption of his work every 2-3 hours in order to apply the barrier cream. In addition, it was impossible for him to wear shoes that kept his feet warm. The insurance status of the patient was critical, as he was unable to use the shoes prescribed by accident prevention legislation. The company ALPRETEC was then asked to develop a sock, using a special fabric with the capacity to create an efficacious and complete barrier and to guarantee good breathability. A pair of MICROAIR® IN-BETWEEN socks made of a multilayer fabric patented by the company itself (Italy - no. 0001328220) were supplied.

(1) Specialist in Allergology-Padua.

(2) Specialist in Dermatology-Padua.

These were lightweight, elastic, absolutely waterproof and breathable, and consisted of a special three-layer fabric: the two external layers were made of knitted polyester microfibre while the central one was a microporous film with a maximum porosity of 3 microns (82 pores for every tenth of a millimetre). The three components were joined together with of an extremely resistant glue guaranteed to withstand sterilization at 115° for 45 minutes.

The patient started to wear the protective socks on a regular basis, continuing, in the first 10 days, with the treatment prescribed. He subsequently suspended the treatment, relying solely on the "barrier" socks and Derasilk® skin-protecting undersocks. At check-ups two and four months later, the skin of the foot was examined, and found to be in perfect condition and the patient has made no further use of drugs, either orally or topically.

This has led to substantial savings. The patient's monthly outlay was as follows: 8 packs of barrier cream costing € 80.00, antihistamine drugs € 12.00, cortisone cream ranging from € 6.50 to € 13.00. His outlay therefore varied from € 98.50 to € 105.00, to which he had to add the price of the skin detergent and the cost of the check-ups at the Specialist's surgery. Indirect costs consisted of production time lost due to the constant applications of the barrier cream and

work days lost as a result of flare-ups of the disease. The barrier socks cost € 30.00 (per pair) and the Derasilk undersocks cost € 22.00 for 2 pairs, totalling € 52.00. Reasonably supposing that the patient purchases 3 sets a year, the outlay comes to around € 150.00 per annum.

In conclusion, the MICROAIR® IN-BETWEEN socks have succeeded in keeping the patient's dermatitis under control, in improving his insurance status (now that he can wear accident-prevention footwear), in considerably containing costs leading to savings on direct costs of over ? 1200.00 /year and, above all, in restoring to the patient a satisfactory quality of life.

References

1. Onder M., Atahan A.-C., Bsoy B. - Foot dermatitis from the shoes. *Int J Dermatol* 2004;43(8):565.567.
2. Foussereau J., Muslmani M., Cavelier C., Herve-Bazin B. - Contact allergy to safety shoes. *Contact Dermatitis* 1986;14(4):233-6.
3. Saary J., Qureshi R., Palda V., De Koven J., Pratt M., Skotnicki-Grant S., Holness L. - A systematic review of contact dermatitis treatment and prevention. *J Am Acad dermatol* 2005;53(5):845.
4. Zhong W., Xing M.-M., Pan N., Maibach H.-I. - Textiles and human skin microclimate cutaneous reactions: an overview. *Cutan Ocul Toxicol* 2006;25(1):23-29.
5. Farage M.-A., Katsarou A., Maibach H.-I. - Sensory clinical and physiological factors in sensitive skin: a review. *Contact dermatitis* 2006;55(1):1-14.