Hand dermatitis caused by ferns

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Allergic contact dermatitis from ferns is seldom reported: Hausen & Schultz (1) described a florist with contact allergy to *Arachnoides adiantiformis* (synonym *Rumohra adiantiformis*) in an addendum, mentioning a second such case seen in a nursery; Stoof & Bruynzeel (2) wrote on a contact allergy to several subspecies of *Nephrolepis exaltata* in 2 fern nursery employees.

Case Report

A 23-year-old female, non-atopic nursery employee presented with a history of relapsing pruritic skin lesions of both hands, especially the left, of about 1 year's duration. She was involved in the cultivation of various ferns, *Saintpaulia* (fam. Gesneriaceae) and *Euphorbia pulcherrima* (fam. Euphorbiaceae). She had complaints only when she had contact with certain ferns, such as *Pteris ensiformis* "Evergemiensis", and especially when they were wet or partly rotten. Contact with other plants or other ferns, e.g., *Nephrolepis exaltata* "Boston Blue Bell", did not cause problems. In her department, at the end of the production line, were working from 10 to 12 persons. Another woman, doing the same kind of work, also had problems with her hands. The work consisted of preparing ferns for transportation to the auction hall. They removed the withered or ugly leaves from 10 to 15-cm tall potplants, and enfolded plant and pot in a plastic sheet. She had done this work for 2 years; previously she had worked in another nursery, without complaints. Although right-handed, she held the pot in her right hand and removed the leaves with her left. Until 1 week before we saw her, she had never worked with gloves.

On examination, there was patchy erythema, small erosions and a few vesicles on the sides of the fingers and on the tips of the thumbs of both hands. The skin of the hands showed "chapping". She was patch tested with the European standard series, including the sesquiterpene lactone mix, and crushed leaves of 4 different fern cultivars (*Pteris ensiformis* "Evergemiensis", *Pteris faurei, Athyrium filix-femina* and *Athyrium niponicum* "Metallicum"). The patch tests were read on D2 and D3. There was a clear positive test to *Pteris ensiformis* "Evergemiensis": on D2 +, on D3 ++. *Pteris faurei* showed on D3 only a ?+ reaction; the 2 *Athyrium* species showed no reactions at all.

The other person with skin problems from the same department, a 43-year-old woman, who on examination also showed hand eczema, was patch tested in the same way, but did not show any positive reactions. We patch tested 23 controls with crushed leaves of *Pteris ensiformis* "Evergemiensis". 21 controls showed no reaction at all, 2 had a ?+ reaction on D2 or D3, but negative reactions on D7. The 1st such control had atopic eczema, and had ?+ reactions to 2 other patch test allergens on D3. The 2nd such control had urticaria, and showed several ?+ reactions on D2 or D3. Therefore, the reactions in these 2 controls were considered as most probably not true positive reactions but irritant.

We advised our patient to wear cotton gloves, when the work was dry, and plastic (PVC) gloves, when the work was wet. We also advised limiting hand washing to about 5× a day, with soft soap, and applying an emollient to the skin after washing. With these measures, the skin healed and remained clear and the patient was able to continue her job.

Discussion

To the best of our knowledge allergic contact dermatitis from ferns has been reported only 2× (1, 2); the ferns belonged to the Aspidiaceae and the Oleandraceae families, respectively. *Pteris ensiformis* "Evergemiensis", however, belongs to the Pteridaceae family. Hausen & Schulz (1) could detect the allergen in the leaves of *Arachnoides adiantiformis* only when spore capsules were present on the surface of the leaves. According to Schmalle et al. (3), the allergen of *Arachnoides adiantiformis* is possibly 9-(11)- fernene, a pentacyclic triterpene.

We wanted to investigate our patient further, but as her skin cleared again, she was no longer motivated to agree to this. Hence, we could not confirm the positive patch test or test her with extracts and other ferns, in particular other Pteridaceae, or with pesticides that were used in the nursery, though not in her department. At least 2 different ferns that were treated in the same way as *Pteris ensiformis* "Evergemiensis" did not give a positive reaction. Thus, it is not likely that a pesticide was the cause. The history and course of the complaints suggest that our patient had hand dermatitis due to contact with ferns, probably caused by allergy to the fern *Pteris ensiformis* "Evergemiensis".

References

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