

CONTACT POINTS

CONTACT DERMATITIS 2007; 56: 240–245

• COPYRIGHT © BLACKWELL MUNKSGAARD 2007

• ALL RIGHTS RESERVED

• CONTRIBUTIONS TO THIS SECTION WILL NOT UNDERGO PEER REVIEW, BUT WILL BE REVIEWED BY THE EDITOR •

Immediate hypersensitivity to paraphenylenediamine

Contact Dermatitis 2007; 56: 240

Andrew J. Birnie and John S. English

Department of Dermatology, Queen's Medical Centre, Derby Road, Nottingham NG7 2UH, UK

Key words: contact urticaria; cosmetics; hairdressing; hair dye; occupational asthma; paraphenylenediamine; type 1 allergy.

Case Report

A 17-year-old trainee hairdresser reported her arm becoming red and extremely pruritic after her teacher had demonstrated on her right forearm how to apply a 'test' of a number of hair dyes. She had also noticed that her hands became red when coming into contact with certain hair dyes. On further questioning, it became apparent that since commencing her training 5 months earlier, her normally very mild asthma (requiring less than 10 puffs of salbutamol per year) had worsened such that while at work, she often found herself with both wheeze and chest tightness. Her mouth and throat had never swollen. She was symptom free at weekends and during holidays.

On presenting at the occupational dermatology clinic, she was scratch tested to 3 hair dyes that she had brought with her (1). Within 10 min, a strong urticarial reaction was seen from 2 of the dyes. Both the products contained paraphenylenediamine (PPD), and as the third did not, she was tested to PPD 1% in pet. (Trolab), which showed a positive urticarial reaction. A diagnosis of immediate hypersensitivity (type 1 allergy) to PPD causing contact urticaria was made. Standard patch tests were not

performed, as there was no history of contact dermatitis. She was examined by a respiratory physician who confirmed that she had occupational asthma to PPD after performing sequential 2-h peak flow monitoring and advised her to consider an alternative career.

Discussion

PPD is a common cause of allergic contact dermatitis in both hairdressers and those who dye their hair, but there are few reports of it causing immediate hypersensitivity. PPD was first reported to cause contact urticaria in 1967 (2), and subsequently a number of other case reports have been published. The development of anaphylaxis or respiratory symptoms appears to be very rare (3). It was only after direct questioning that our patient volunteered that her breathing was affected and the occupational asthma diagnosed. Patients may not equate their worsening respiratory symptoms to their skin problem and thus physicians must remain alert to this possibility when assessing a patient with contact urticaria, as possible life-threatening, anaphylaxis may occur.

References

1. Marks J G, DeLeo V A. *Contact and Occupational Dermatology*, 2nd edition, Mosby, 1997.
2. Calnan C D. Hair dye reaction. *Contact Dermatitis Newslett* 1967; 1: 16.
3. Fukunaga T, Kawagoe R, Hozumi H, Kanazaki T. Contact anaphylaxis due to para-phenylenediamine. *Contact Dermatitis* 1996; 35: 185–186.

Address:

Andrew J. Birnie
Department of Dermatology
Queen's Medical Centre
Derby Road
Nottingham NG7 2UH
UK
e-mail: birnieandrew@hotmail.com