

Angry back syndrome is often due to marginal irritants: a study of 17 cases seen over 4 years

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17 patients with angry back syndrome were identified over a 4-year period (1994–97). 10 such patients were classified as multiple reactors and 7 as exacerbations of atopic eczema. The 10 multiple reactors reacted most commonly to medicaments, rubber chemicals, fragrances, methylchloroisothiazolinone/methylisothiazolinone, colophonium and nickel. A final diagnosis of relevant allergic contact dermatitis was made in 8 of the 10 patients with multiple reactions. Relevant contact allergens were rubber chemicals, plants, metals and preservatives, all of which can be marginal irritants. None of the reactions in the patients with exacerbation of dermatitis were thought to be relevant or helpful in the further management of the patient. Reactions in the angry back syndrome appear to be due most commonly to marginal irritants. In multiple reactors, marginal irritants were also the most common allergens finally identified.

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The angry back or excited skin syndrome arises in patch testing when false-positive reactions occur close to true-positive ones. This can be due to hyperirritability resulting from a pre-existing dermatitis, or from fluctuation of humoral and cellular inflammation-modulating phenomena (1). The underlying mechanisms are not fully understood (2–4). The reactions are not reproducible when the underlying causes have subsided (1). We undertook a study to assess the patterns of reactants in severe reactions on the back occurring during patch testing in Sheffield over a 4-year period.

Patients and Methods

17 patients who had had severe reactions on the back were identified from our patch testing database over the 4-year period 1994 to 1997. During this time, approximately 1600 patients had been patch tested in the contact dermatitis clinic. The patients were categorized as being either multiple reactors or having had exacerbations of a pre-existing dermatitis. All allergens and the results of repeat patch testing were recorded. The relevance of the reactions was assessed by a review of the case records.

Results

Results of patch testing

10 patients were categorized as multiple reactors and 7 were classified as having had an exacerbation of a pre-existing dermatitis. Table 1 shows the results of initial patch testing in the 10 patients who were multiple reactors. 1 subject with multiple reactions reacted to all his patches for the duration of the test and is therefore not included in the table. There were 71 reactions recorded in the other 9 multiple reactors. Of these, the commonest reactions were to medicaments, rubber chemicals, fragrances, methylchloroisothiazolinone/methylisothiazolinone, colophonium and nickel. Table 2 shows the results of initial patch testing in 5 of the 7 patients who had an exacerbation of dermatitis. The other 2 subjects had had an exacerbation of their eczema over the whole patch testing site from day (D) 2 and it was not possible to read individual reactions on their backs. The 5 who did have reactions showed a total of 11 reactions: 3 to preservatives, 2 to rubber chemicals and 6 to other agents.

Table 1. Results of initial patch testing in 9 of the 10 multiple reactors, classified into the groups to which the reacting allergen belonged

Nature of allergen	No. reactions on initial patch test
<i>medicaments</i>	
Achromycin oint, benzocaine, betamethasone-17-valerate, BHA, clioquinol, clobetasol-17-propionate, chloramphenicol, hydrocortisone-17-butyrate, neomycin, soframycin, tixocortol-21-pivalate, triamcinolone, Trimovate	14
<i>rubber chemicals</i>	
carba mix, mercapto mix, thiuram mix, mercaptobenzothiazole, rubber glove	12
<i>fragrances</i>	
amylcinnamal, fragrance mix, Myroxylon Pereirae, cedarwood oil, clove oil, oak moss absolute, sandalwood oil	10
<i>preservatives</i>	
2-bromo-2-nitropropane-1,3-diol, formaldehyde, methylchloroisothiazolinone/methylisothiazolinone	8
<i>vehicles</i>	
Amerchol L-101, cetearyl alcohol, hydrogenated lanolin, propylene glycol, sorbitan sesquioleate, wool wax alcohols	8
<i>colophonium</i>	5
<i>nickel sulfate</i>	4
<i>other metals</i>	
cobalt chloride, ammoniated mercury, potassium dicyanoaurate	3
<i>sesquiterpene lactone mix</i>	4
<i>miscellaneous</i>	
urea-formaldehyde resin, p-phenylenediamine, N-isopropyl-N-phenyl-4-phenylenediamine	3
total	71

Table 2. Results of initial patch testing in 5 of the 7 patients with exacerbation of dermatitis

Nature of allergen	No. reactions on patch test
<i>medicaments</i>	
clobetasol-17-propionate	1
<i>rubber chemicals</i>	
carba mix, thiuram mix	2
<i>preservatives</i>	
chloroxylenol, imidazolidinyl urea, parabens	3
<i>vehicles</i>	
wool wax alcohols	1
<i>colophonium</i>	1
<i>nickel sulfate</i>	1
<i>sesquiterpene lactone mix</i>	1
<i>miscellaneous</i>	
wood tar mix	1
total	11

Results of repeat patch testing

Repeat patch testing was performed in patient nos. 1–3 of the 10 multiple reactors. Results of repeat testing in patient no. 1 are shown in Table 3. Patient no. 2 reacted to nickel sulfate, cobalt chloride, ammoniated mercury and potassium dicyanoaurate on D2 of initial patch tests but had an angry back on D4. Repeat testing again showed the same reactions but these were sustained at D4 with no angry back reaction. Patient no. 3 reacted to all patch tests at initial testing. On repeat testing, he reacted only to sesquiterpene lactone mix and Myroxylon Pereirae.

Repeat patch testing was performed in patients nos. 11–13 of the patients who had an exacerbation of eczema. Patient no. 11 had a generalized eczema and his eczema flared over the patch test area on the upper back on D2 with no obvious positive reactions. On repeat testing, all patch tests were negative at D2 and D4. Patient no. 12 was patch tested because he had had an exacerbation of atopic eczema, and reacted to parabens mix and chloroxylenol at D2. At D4, he had an exacerbation of eczema over the patch test site on his back. Repeat tests showed a slight reaction to parabens at D2 but all were negative at D4. Patient no. 13 was patch tested because he had had an exacerbation of atopic eczema, and showed a reaction to thiuram mix and Amerchol L-101 at D2. By D4, however, he had flared over his whole back, including the patch tested area. On repeat patch testing, he reacted only to thiuram mix.

Relevance of reactions

A final diagnosis of allergic contact dermatitis from a relevant allergen was made in 8 of the 10 patients with multiple reactions. The relevant allergens were rubber chemicals in 4 patients, plant allergens in 2, metals in 1 and preservatives (2-bromo-2-nitropropane-1,3-diol and methylchloroisothiazolinone/methylisothiazolinone) in 1.

None of the reactions in the patients with exacerbation of dermatitis were thought to be relevant or helpful in the further management of the patient.

Discussion

The reactions found were most commonly due to patch test allergens that are regarded as marginal irritants, both in the patients with multiple reactions and in those who had an exacerbation of a pre-existing dermatitis. This is compatible with what is known about the angry back or excited skin syndrome. The false-positive reactions are

Table 3. Results of repeat patch testing in patient no. 1, a subject who showed multiple reactions

Nature of allergen	No. reactions on initial patch test	No. reactions on repeat patch test
<i>medicaments</i>		
Achromycin oint, betamethasone-17-valerate, clobetasol-17-propionate, chloramphenicol, hydrocortisone-17-butyrate, tixocortol-21-pivalate, triamcinolone	6	1
<i>rubber chemicals</i>		
thiuram mix	1	—
<i>fragrances</i>		
amylcinnamal, cedarwood oil, clove oil, oak moss absolute	4	—
<i>preservatives</i>		
methylchloroisothiazolinone/methylisothiazolinone	1	—
<i>vehicles</i>		
Amerchol L-101, hydrogenated lanolin, sorbitan sesquioleate	3	—
<i>colophonium</i>	1	—
<i>sesquiterpene lactone mix</i>	—	1
total	16	2

often due to marginally irritant allergens giving weak positive reactions, which are then lost on repeat patch testing (5, 6). Examples of these include rubber chemicals, fragrances, metals, formaldehyde, parabens and wool wax alcohols (5).

Hyperirritability is caused by both irritant and allergic contact dermatitis (1). Therefore, it is possible that a chemical which produces both types of reaction is more likely to provoke the angry back syndrome. In this small series, patients with multiple reactions to marginal irritants appeared to have rubber chemicals and plant allergens, both of which can also be marginal irritants, as the most common final allergens (5, 6). Although the patients with an exacerbation of dermatitis also reacted most commonly to marginal irritants, none of their reactions were considered relevant.

In general, repeat patch testing should be considered if apparent positive reactions are not clinically relevant (1, 5, 6). This is especially important if the material is ubiquitous or if it is of particular relevance to the patient, e.g., because it may necessitate a job change (1). Repeat patch testing was helpful in 6 of our patients.

In summary, reactions in the angry back syndrome appear to be due most commonly to marginal irritants. In multiple reactors, marginal

irritants were also the most common final allergens.

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