

BASOPHIL LEUKOCYTES IN NON-VESICULAR ALLERGIC PATCH TEST REACTIONS*

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It was recently reported (1) that vesicles of allergic patch test reactions contain abundant basophil leukocytes. Many allergic test reactions are characterized, however, by infiltration and papules without the development of any vesicles. In order to obtain exudate for determination of the relative number of basophils in such cases we provoked a cantharidine bulla at the site of infiltration of the area tested. This technic has been used previously by Nexmand (2) for cytologic studies of intracutaneous test reactions.

MATERIAL AND METHODS

Thirty-three non-vesicular infiltrative patch test reactions produced by 17 different allergens were studied in 16 patients. Tincture of cantharidine was applied with patch test technic (a) on test reactions that had developed after closed application of allergen for 24-48 hours and (b) on normal skin. The interval between application of the allergen and of the cantharidine was 24 to 120 hours. The cantharidine patches were removed after 3 to 48 hours, by which time the bullae had appeared.

Samples were obtained by puncturing the epidermis covering this bulla with a fine injection needle and gently pressing a glass slide against the drop of fluid oozing from the lesion. The slide was then air-dried and stained in 1% toluidine blue in methanol for 5 minutes, according to Undritz (3). When possible, 1,000 nucleated cells were counted. However, in 7 bullae on infiltrative test reactions and in 3 bullae on normal skin, less than 1,000 cells were present. Immersion objective X 100 and ocular X 12.5 were used.

RESULTS

It is clear from the table that in 28 of 32 samples the basophil leukocytes represent more than 1.0% of cells in the bullae produced by cantharidine at the site of allergic tests.

The cantharidine bullae on normal skin had in 15 of 16 samples at most 1.0% of basophils. The cantharidine bulla on normal skin which contained more than 1% basophil leukocytes was 48 hours old. Examination of a new cantharidine bulla on normal skin in this patient after 3 hours showed 0% basophil leukocytes.

In all the samples studied except two, the basophil count was higher in the cantharidine

TABLE I
Relative number of basophil leukocytes in cantharidine bullae on infiltrative test reactions and on normal skin

Allergen	Patient	Basophils in Allergen-Cantharidine Bulla (%)	Basophils in Cantharidine Bulla (%)
Chromate	2	3.0	0.7
Chromate	3	5.0	0
Chromate	8	2.0	0
Chromate	9	5.0	0.2
Chromate	10	1.2	5.2
Chromate	11	0.5	0
Formaldehyde	6	5.6	0
Formaldehyde	15	1.6	0.3
Hexamethylenetetramine	15	0.5	0.3
Balsam of pine	7	2.3	0.3
Balsam of pine	10	3.0	0.2
Balsam of spruce	1	9.6	0.4
Balsam of spruce	7	2	0.3
Balsam of spruce	9	5.0	0.2
Balsam of Peru	8	2.2	0
Resin benzoin	14	1.1	0.3
Colophony	7	1.0	0.3
Colophony	9	4.4	0.2
Colophony	13	4.8	0
Oil of turpentine	2	2.7	0.7
Oil of turpentine	13	5.2	0
Epoxy resin	4	7.5	0.3
Epoxy resin	8	12.0	0
Epoxy resin	9	2.0	0.2
p-Phenylenediamine	12	0.2	0.2
p-Aminoazobenzene	12	1.0	0.2
p-Toluidine	4	10	0.3
p,p'-Diaminodiphenylmethane	9	1.8	0.2
Diphenylguanidine	16	1.1	0
Neomycin	1	1.4	0.4
Neomycin	13	8.0	0
Vioform	5	1	0

bullae on test reactions than in cantharidine bullae on normal skin.

DISCUSSION

The present findings together with data given by Wolf-Jürgensen (4) and Aspegren, Fregert and

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Rorsman (1) suggest that basophils may be of importance in allergic eczematous contact dermatitis.

The occurrence of basophils in cantharidine bullae at the site of non-vesicular allergic contact test reactions implies that all patch test reactions can be studied for basophils irrespective of the presence of primary vesicles.

Even if local basophilia is not absolutely specific for allergic eczematous contact dermatitis (5, 6, 7) basophil determination in test reactions may be useful in the very important differentiation between allergic eczematous and primary irritant dermatitis.

SUMMARY

By application of cantharidine on a non-vesicular allergic patch test reaction an exudate is obtained which contains basophil leukocytes to about the same extent as in primary allergic vesicles.

Determination of the relative number of basophils in patch test reactions appears to be of

value in differentiating allergic from primary irritant dermatitis.

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