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LETTER TO THE EDITOR

Eeosinophils in Allergic Contact Dermatitis

Sir,

In human allergic contact dermatitis, lymphocytes are the cells predominantly found in routinely stained sections, and there are also numerous monocytes/macrophages and mast cells (1), but only a few basophils and eosinophils are observed (1, 2). During allergen challenge, patients with contact allergy display a time dependent increase in the number of mononuclear, eosinophilic and basophilic cells in the dermis, while polymorphonuclear cells seem to decrease (2). Degranulated eosinophils and extracellular deposits of the granule proteins are difficult to detect in routinely stained sections. The availability of polyclonal and monoclonal antibodies against some eosinophil granule proteins, e.g. eosinophilic cationic protein (ECP), has resulted in increased knowledge about the eosinophil in several skin diseases (3–5). Using a skin window technique, Lerche et al. (2) found a significant increase in granular proteins, e.g. lactoferrin, lysozyme, myeloperoxidase (neutrophilic granular proteins) and ECP in the dermis on the second day of allergen exposure in patients with nickel contact allergy, compared with the same patients without allergen challenge and with normal volunteers.

In this preliminary study we report the finding of numerous eosinophils in allergic contact reactions. Eight patients (mean age 48.5 years) with a history of eczema were patch-tested when the eczema had disappeared. They were receiving no topical or systemic treatment. For comparison, skin biopsies were taken from healthy subjects and from non-involved skin in patients with psoriasis. The patch tests were performed with the TRUE-test (Pharmacia, Uppsala, Sweden) (6). The standard series recommended by the International Contact Dermatitis Research Group (ICDRG) was used. All patch tests were applied on the upper part of the back, removed after 48 h and read after 72 h. Reactions were recorded according to the scoring system of ICDRG (+ = weakly positive reaction with erythema and infiltration, possibly discrete papules; ++ = strongly positive reaction with erythema, infiltration, papules and vesicles). The patch test results are summarized in Table I.

Biopsy specimens were taken from skin with positive patch

Table I. *Patch test reactions*

Age/sex	Allergen	Patch test reaction	Deposition of immunoreactive material in epidermis/dermis
62/F	formaldehyde	++	+/+++
30/F	formaldehyde	++	0/++
42/F	p-phenylenediamine	++	0/++
36/F	p-phenylenediamine	++	+/++
56/F	colophony	++	+++/++++
42/F	nickel sulphate	++	+++/+++
52/M	nickel sulphate	+	0/+
60/M	neomycin	+	0/+

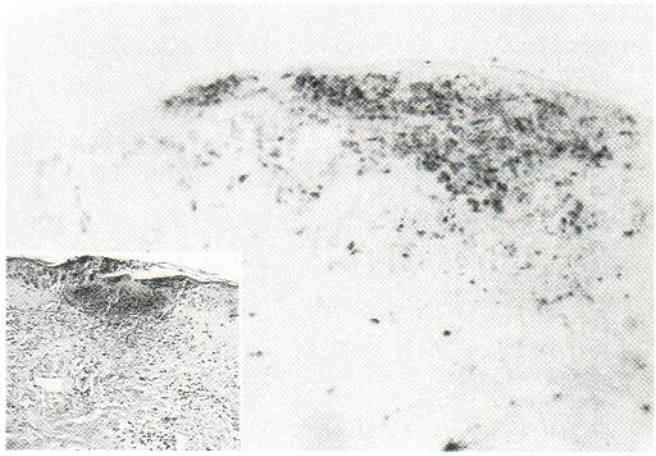

Fig. 1. Light micropgraph of a specimen from a ++ colophony patch test reaction. With the PAP procedure for visualization of ECP, large amounts of ECP are seen to be deposited in a vesicle in the epidermis and a few EPC-immunoreactive cells are scattered in the papillary dermis. *Insert:* A large number of inflammatory cells aggregated in the epidermis (van Gieson-eosin staining).

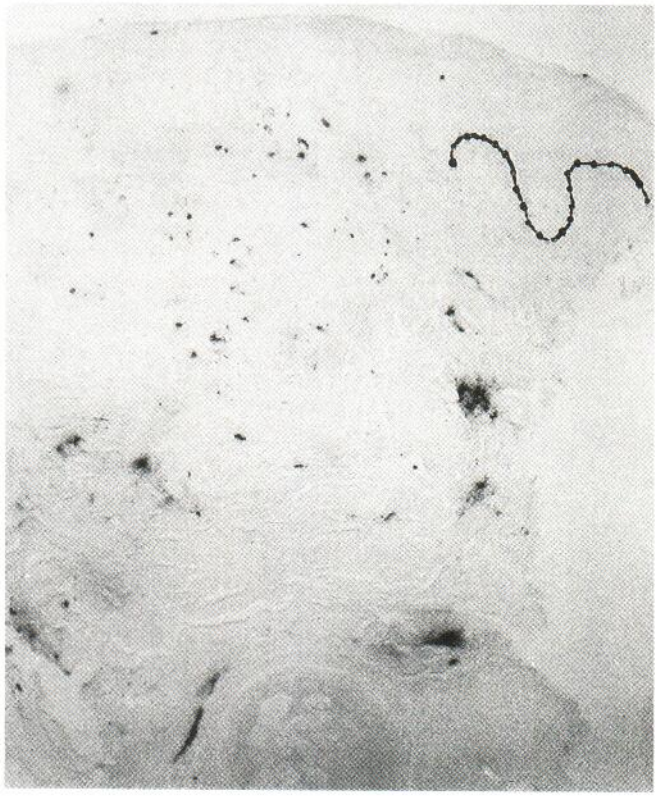

Fig. 2. Light micrograph of a specimen from a ++ formaldehylde patch test reaction (van Gieson-eosin staining) showing ECP-immunoreactive cells and aggregates of extracellularly deposited ECP in the dermis. *Dotted line* indicates part of epidermis.

test reactions, at the time of reading of the test. The biopsy specimens (3 mm) were fixed in 4% paraformaldehyde dissolved in phosphate-buffered saline and embedded in paraffin. A polyclonal antibody "ECP" directed against storage and secreted forms of ECP was used (7). The same staining and control procedures with the immunoperoxidase-PAP technique as previously described was used to visualize the eosinophils (5).

The number of cells reactive to ECP antibody and extracellular deposition of granule proteins as measured by ECP antibodies in each section, was graded from 0 to ++++ (+ indicated just a few immunoreactive cells or a few aggregates of extracellular, scattered ECP, ++ meant a few immunoreactive cells and 5–15 groups of extracellular ECP and ++++ indicated more than 10 immunoreactive cells and over 40 groups of extracellularly deposited ECP.

In four out of eight positive patch test reactions depositions of ECP were found in the epidermis, either located within the vesicles or scattered in the epidermis (Table I, Fig. 1). In all the biopsies ECP-immunoreactive cells and/or aggregates of extracellular ECP were observed in the dermis (Fig. 2). ECP was not found in healthy controls or in the uninvolved skin of the psoriatic patients.

In routinely stained sections from lesions of patients with contact allergic dermatitis, only a few eosinophils are reported. However, with our more sensitive immunohistochemical method numerous eosinophils and large amounts of degranulated ECP in human allergic contact reactions were detected.

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ANNOUNCEMENTS

The Third Congress of the European Academy of Dermatovenereology will be held in Tivoli Gardens, Copenhagen, Denmark, **September 26–30, 1993.** For further information please contact International Conference Services, P.O. Box 41, Strandvejen 171, DK-2900 Hellerup, Denmark.

The 16th World Congress of the International Union of Angiology will be held in Paris, France, **September 12–18, 1992.** A dermatological session will take place on Wednesday September 16th with 3 main topics: Skin blood flow in health and disease; Skin angiodysplasias and vascular tumours; and Skin blood flow and plastic surgery. For further information please contact Dr P. Agache, Department of Dermatology, CHU, 2503 Besancon, France.

European Congress on Wound Healing and Skin Physiology will be held in Bochum, Germany, **November 1992.** For further information please contact Dr S. el Gammal, Dermatologische Klinik der Ruhr-Universität im St. Josef-Hospital, Gudrunstraße 56, D-4630 Bochum 1, Germany. Tel: (0234) 509421, Fax: (0234) 592525.

The 3rd Asian Dermatological Congress will be held in Hong Kong, **January 15–17, 1993.** For further information please contact Congress Manager IIR Ltd, Room 1804–5, Seaview Commercial Building, 21–24 Connaught Road West, Hong Kong. Tel: (852) 5495618. Fax: (852) 5487235.

The 9th International Symposium on Bioengineering and the Skin will be held in Sendai, Japan, **October 19–20, 1992** after the Annual Meeting of the Japanese Society for Investigative Dermatology October 16–18, 1992. For further information please contact Tadashi Terui, M.D., Department of Dermatology, Tohoku University School of Medicine, 1–1 Seiryo-machi, Aoba-ku, Sendai 980, Japan. Tel: (81) 22-2739275. Fax: (81) 22-2762774.

The 19th Annual Meeting of the Society for Cutaneous Ultrastructure Research will be held in Lyon, France, **September 17–29, 1992** in honour of Professor Jean Thivolet. The deadline for receipt of the abstracts is February 15, 1992. For further information please contact SCUR 92 Organizing Committee, Pavillon R, Hospital Edouard Herriot, 69437 Lyon Cedex 03, France. Tel: 78-54 77 08, Fax: 72-33 71 31.