

incidence of gastric and cutaneous side effects (4, 8). However, pharmacodynamic studies indicate that 60% of the drug is excreted unchanged by the kidneys; this may place patients with renal impairment in a more vulnerable position with regard to the development of side effects. The second patient reported above had a reduced creatinine clearance.

Bullous drug eruptions are well-recognised. Pemphigus has been described in association with penicillamine therapy (7) and a case of pemphigus induced by rifampicin has also been described (5). In these cases the classical immunological features of pemphigus were present.

A photosensitive bullous dermatosis has been reported after treatment with nalidixic acid (2) and seemingly may also occur with high dose frusemide therapy (3).

In our cases neither of the immunological features of pemphigus nor pemphigoid were present and the pathogenesis of each eruption must remain in doubt. The two eruptions were quite distinct clinically. Both patients were receiving other medication, and thus the possibility of a drug interaction exists. Azapropazone is related clinically to phenylbutazone (personal communication from manufacturers). Recently an eruption consisting of acral haemorrhagic blisters has been described in patients receiving treatment with phenylbutazone (6).

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Immunoelectron Microscopy of Linear Dermatitis Herpetiformis: Report of a Case

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Abstract. Linear deposits of both IgA and C₃ were found along the BMZ (by direct IF), and band-like IgA deposits directly below the basal lamina (by HRP-anti-HRP electron microscopy), in a case of clinically typical DH. No circulating antibodies could be detected.

Key words: Dermatitis herpetiformis; Immunofluorescence; Immunoelectron microscopy

Two different distribution patterns of IgA and C₃ deposits are demonstrated by direct IF in cases of clinically typical DH (4): (i) the more common papillary type with finely granular (speckled) precipitates dispersed over the tips of the dermal papillae and the upper strata of the dermis, and (ii) the rather rare, linear (continuous) type exhibiting a band-like array of deposits along the BMZ of skin.

Yaoita & Katz (10) and Stingl et al. (8) were the first to report on IEM of typical granular (speckled) DH, describing a chunky (granular) pattern of IgA deposition well below the basal lamina and sparing the lamina lucida.

The paper by Yaoita & Katz (10) also describes two different ultrastructural patterns of Ig-deposition in linear-type DH: a linear dermal and a linear lamina lucida pattern, the former exhibiting IgA just below the basal lamina in a band-like distribution; the latter characterized by localization of IgA deposits in a similar band-like fashion but within the lamina lucida.

The observation of a pertinent case prompts us to report our own results of IEM in linear DH.

List of abbreviations: Immunoglobulin(s): Ig; Complement (fraction): C; Basement membrane zone: BMZ; Dermatitis herpetiformis: DH; Bullous pemphigoid: BP; Immunoelectron microscopy: IEM; Immunofluorescence: IF; Horseradish peroxidase: HRP.

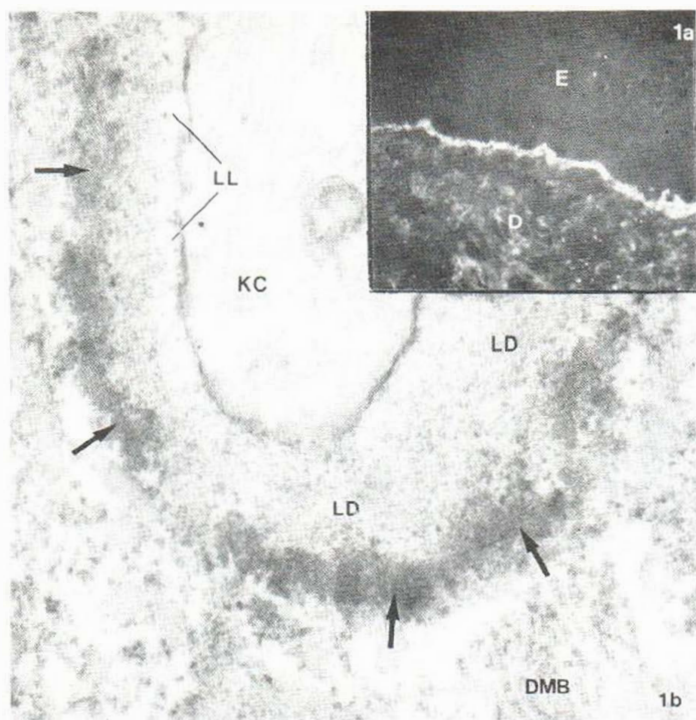


Fig. 1. (a) DH: direct IF; antihuman IgA conjugate; linear band-like fluorescent staining along the BMZ. D: dermis, E: epidermis. $\times 125$. (b) DH: HRP-anti-HRP technique, anti-human IgA conjugate. The lamina lucida (LL) and lamina densa (LD) are free of deposits. Band-like pattern of reaction product (arrows). The dermal microfibrillar bundle (DMB) is devoid of deposits. KC: keratinocyte. $\times 58\,000$.

CASE HISTORY

A 45-year-old white man. Previous history unremarkable. The patient was in good health until age 41, when he first developed a polymorphous, erythematous-papular and vesicular rash. He was subsequently kept on a variety of therapeutic regimens, including sulfone administration, with variable success. Following a recent outbreak of skin symptoms he was referred to our department.

The patient presented with a papulo-vesicular eruption involving the typical predilection sites of DH. Oral mucosal involvement could not be detected. Results of laboratory tests were within normal limits.

After the diagnosis of DH was established by histopathologic and immunofluorescent criteria, the patient received diaminodiphenylsulfone (Avlosulfone, Imperial Chemical Industries) in a dosage of 50 mg/day. Under this therapeutic regimen an almost complete clearing of the eruption was achieved within one month.

MATERIAL AND METHODS

Biopsy specimens were taken under local anaesthesia, twice over a period of 6 months, from apparently normal skin and from the periphery of fresh erythematopapular lesions. Serum samples were stored at -70°C until studied.

Immunofluorescence: Direct method: Specimens were processed for the detection of IgG, M. A. and C₃, using standard methods and antisera, as described previously (1, 4, 8). **Indirect method:** Patient's and control sera in

dilutions of 1:20 and 1:40 were examined for circulating antibodies, utilizing rhesus monkey esophagus as a substrate and antihuman IgG conjugate. One of the anti-IgG conjugates (goat origin) was kindly provided by Dr Ernst H. Beutner, SUNY at Buffalo, Buffalo, N.Y.

Immunoelectron microscopy: Shave biopsies were subjected to the immunologic reaction chain of the HRP-anti-HRP technique (5, 8) as described previously. The anti-HRP antiserum (goat origin) has been produced at the SUNY at Buffalo, by one of us (K. H.). Other antisera employed were of commercial origin.

Controls: Appropriate controls were performed for both IF and IEM (8).

RESULTS

Histopathology: Typical accumulation of neutrophils and/or eosinophils was found in the tips of the dermal papillae, forming microabscesses, especially in the periphery of subepidermal multilocular blisters. Leukocytes surrounded dilated capillaries and were diffusely scattered throughout the edematous dermis.

Immunofluorescence: Direct method: A heavy deposition of IgA and a light deposition of C₃ were observed along the BMZ in a linear (continuous) pattern. Papillary granular deposits were absent. No IgG and IgM deposits could be detected (Fig.

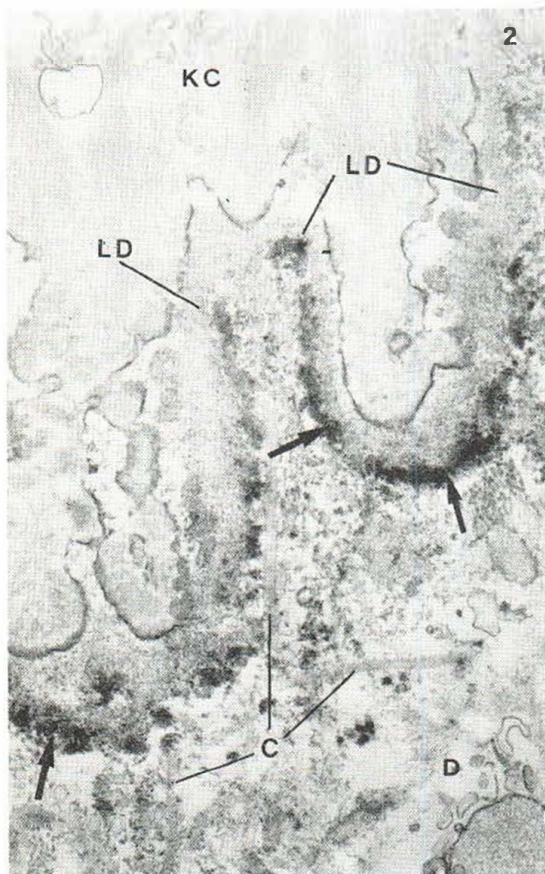


Fig. 2. DH: HRP-anti-HRP technique, anti-human IgA conjugate. The electron-dense reaction product (arrows) is distributed in a band-like pattern along the dermal side of the lamina densa (LD). C: collagen fibres. KC: keratinocyte, D: dermis.

1a). *Indirect method*: No circulating antibodies could be demonstrated in patient's serum over a period of 6 months.

Immunoelectron microscopy by HRP-anti-HRP technique (5, 8) (Figs. 1b, 2): Electron-dense deposits appeared closely packed and sometimes confluent, and were distributed in a band-like pattern along the dermal side of the basal lamina. The periodicity of anchoring fibrils was obscured by precipitates and could be detected only in areas incompletely covered by the reaction product, or entirely free of it. The adjacent lamina densa and the lamina lucida were devoid of deposits. No precipitates could be discovered in association with bundles of microfibrils and collagenous fibres.

Controls: All control specimens were free of reaction products at specific sites.

DISCUSSION

The disclosure of also a linear type of IF pattern in DH (4) has repeatedly raised speculations as to the relationship between DH and BP, and moreover, as to the possible existence of intermediate and/or mixed forms of both disorders (6). Consequently, further attempts at clarifying this problem have been made, turning to IEM (8, 10).

As of today, the following may be stated with regard to IEM of DH: Three patterns have been described (vs. two IF patterns by light microscopy): one granular (speckled) and two linear types (10). As regards these three patterns of DH in IEM, one might speculate that, (i) the chunky (granular) pattern of IEM is produced by gluten-antigluten complexes cross-reacting with reticulin-fixed antireticulin antibodies (as hypothesized by Seah et al. (7)). The numerical prevalence of this pattern over the alleged rate of a mere 20% incidence of reticulin antibodies in cases of DH, does not rule out such an explanation, as most techniques detect only free antibody, and results are valid only for the time of observation. (ii) In the absence of reticulin antibodies, other factors might become decisive—for example, C_3 -receptors which are known to occur in renal glomerula (3) and the existence of which could also be hypothesized for the BMZ of skin. Moreover, it should be recalled that a variety of autoantibodies besides antireticulin antibodies, has been detected in DH, i.e. antithyroid, anti-gastric parietal cell, antinuclear antibodies (2, 7, 9). This variety could, in turn, be responsible for a similar variety in immune complex composition, the latter further determining the still elusive partners of antigen-antibody reactions in the BMZ (and/or elsewhere). In some of these cases of DH the reactive antigens are apparently localized above or below the basal lamina, giving rise to two linear patterns in IEM.

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Reticular Erythematous Mucinosi Syndrome: Report of a Case

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Abstract. A 47-year-old man with erythematous, maculopapular rash on the chest and the back. Histology showed perivascular infiltration of lymphocytes, especially around hair follicles, and alcian green positive deposits in the dermis. Some improvement was achieved by treatment with 200 mg oxychloroquine sulphate (Plaquenil, Winthrop) twice daily.

Key words: REM syndrome; Reticular erythematous mucinosis syndrome; Mucinoses



Fig. 1. A perivascular lymphocytic infiltration, especially marked around a hair follicle with its sebaceous gland. No mucinous deposition in this area. (Original magnification, $\times 11$.)

The reticular erythematous mucinosis syndrome is a rare disease. It was first described in 1974 by Steigleder et al. (3, 4). Their 4 patients (3 men and 1 woman) had all for some years been suffering from a then unknown dermatosis. As a preliminary diagnosis, Steigleder coined the term "round-cell-erythematosis". The rash affected the skin on the chest and upper part of the back. It was a more or less sharply outlined sheet or net-like erythema, with a slightly infiltrated centre. There were some complaints of itching and also of aggravation upon sun-exposure. In each case, histology showed pronounced perivascular infiltrates of round cells—predominantly lymphocytes—and an alcian blue-staining substance in the dermis. The material was not metachromatic and did not stain with