

DELAYED HYPERSENSITIVITY AND FEBRILE ACNE CONGLOBATA

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Abstract. Delayed hypersensitivity reactions were investigated in 5 patients with febrile acne conglobata. Each of them had febrile periods, large abscesses and leukocytosis. They reacted negatively to tuberculin 10 TU/ml, to Schick toxin, to oidiomycin, to trichophytin as well as to 25 common contact allergens. DNCB did not induce sensitization in those 4 patients in whom it was carried out. However, the transformation of lymphocytes by phytohaemagglutinin (PHA) was normal. Five of 7 control patients with cystic or ordinary acne had positive tuberculin test reactions and 3 of them were sensitized to DNCB.

Key words: Acne cystica; Delayed hypersensitivity; Febrile acne conglobata

Acne conglobata is considered to be a chronic suppurative variant of acne vulgaris (1, 2). It was first described by Spitzer in 1903 (15). Severe cases of acne in which the course of the disease is uncommon—for instance, febrile reactions, ulcerative lesions, polyarthralgia—have also been diagnosed as acne conglobata (3, 6, 7, 10, 14, 16).

The main bacteria in acne, as well as in the severe forms of acne, are *Staphylococcus albus* and *Corynebacterium acnes* (4, 9, 13). Both are regarded by many investigators as contributors to pathogenesis (13). However, the reaction of serious acne to antibiotic treatment is often only slight, whereas corticosteroids have a beneficial effect on the disease (3, 6, 14).

The immunological features of acne have been the subject of several investigations. By using the skin window method, Juhlin found increased numbers of basophil leucocytes, especially in serious cases of acne (5). According to him it is unlikely that any bacteria act as an antigen in acne lesions.

As early as 1931 Michelson & Allen described an acne conglobata patient with a negative tuber-

culin test reaction (8). In 1959 Burns & Colville described a febrile acne conglobata patient with negative tuberculin and trichophytin reactions (6). G. Rajka has investigated delayed hypersensitivity reactions in acne patients by using viral and bacterial extracts. Four of his six acne conglobata patients showed negative reactions (12).

Since the immunological features of acne conglobata are still obscure, we decided to investigate the ability of our patients with febrile acne conglobata to react to a series of antigens causing delayed hypersensitivity reactions.

MATERIAL AND METHODS

A. Febrile acne conglobata patients

Between 1966 and 1975, 5 patients with febrile acne conglobata were admitted to the Department of Dermatology, University of Oulu. All of them resembled the case described by Kelly & Burns (6). Four were boys and one was a girl, their ages ranging from 13 to 17 years.

All the patients had had acne for one to two years before a sudden worsening of the disease. Then, within 2 months, large cystic fistulated abscesses developed, mainly on their faces but also on the chest and back. Three of the patients had local oedema on the forehead and on the eyelids, 3 had arthralgia, one on an ankle, 2 in a sacro-iliac joint. The patients had moderate fever (37.5–38.5°C) for some weeks during the acute phase of the disease.

Laboratory findings

Moderate leukocytosis, 11 000–17 000 leuk/l and elevated E.S.R. (40–80) were the only distinctly positive laboratory findings. All of the patients had somewhat elevated alkaline phosphatase values. S-ASAT, S-ALAT, thrombotest, S-bilirubin were normal. Their bone marrow values were normal and repeated blood cultures were negative. Latex test, Le-cells and antinuclear antibodies were negative. S-creatinine and urinalyses were normal. Numerous bacterial cultures from the abscesses revealed only *Staphylococcus albus*.

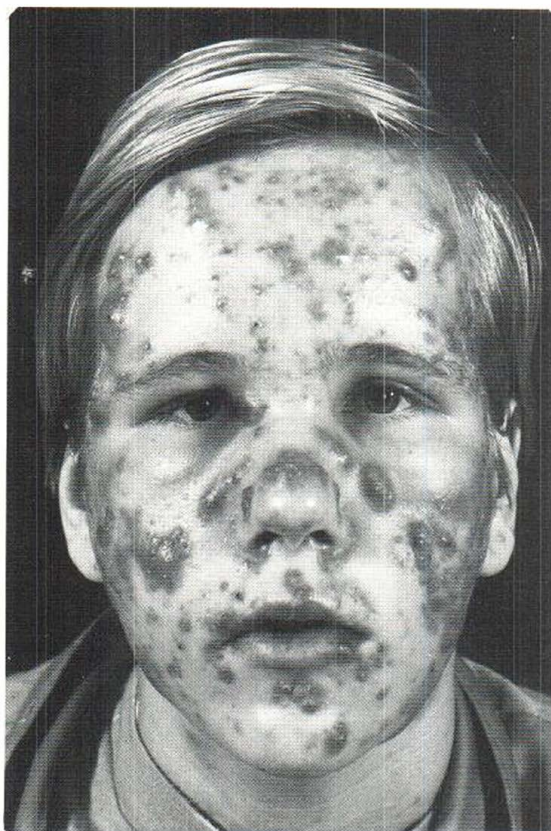


Fig. 1. Febrile acne conglobata patient with local oedema on the lower eyelids.

Treatment

Because of the septic course of the disease, fatigability, abscesses, fever and leukocytosis, all of the patients were treated initially as septicaemia cases, i.e. with 20 million units of G penicillin as intravenous infusions and 1 g streptomycin intramuscularly per day for 7–10 days. However, there was no response to this treatment. Then other antibiotics (tetracyclin, cefalosporin (Keflin®; Eli Lilly & Co. Ltd., England), clindamycin (Dalacina®; The Upjohn Company, USA) were also tried, but without success. Prednisolone in doses of 20 mg per day suppressed the fever within 2–3 days and showed a marked effect on the inflammatory process. The prednisolone treatment was continued for 1 to 2 months.

Course of the disease

The active phase of the disease with febrile spells lasted for about 2 years in 4 of the patients. In the fifth patient the disease is still active after a follow-up of one year. He still develops abscesses and is subfebrile in spite of low-dose tetracycline treatment (250 mg/day).

B. Control patients

The control group consisted of 7 acne patients. Five of

them had ordinary cystic acne and 2 papulopustulotic acne. None of them had febrile spells.

In 1974 both the febrile acne conglobata patients as well as the control patients were exposed to the following antigens:

1. Purified tuberculin, PPD; Statens seruminstitut, Copenhagen, in concentrations 10, 1.0 and 0.1 TU/ml.
2. Allergic extract trichophyton gypseum; Hollister Stier Laboratories, in dilution 1:50.
3. Allergic extract oidiomycin; Hollister Stier Laboratories, in dilution 1:50.
4. Schick toxin, Orion Laboratories, Finland.
5. 25 common contact allergens using the epicutaneous chamber test method (11).
6. Phytohaemagglutinin stimulation test (PHA).
7. Dinitrochlorobenzene. The primary sensitization was done with 10% DNCB in acetone solution. This provoked a toxic reaction. After 2 weeks, epicutaneous testing with 0.1% DNCB was carried out.

The delayed reactions were recorded at 48 and 72 hours. The Schick test was recorded on the seventh day too and the epicutaneous tests also on the fifth day. Patients belonging to the febrile group were hospitalized during the investigations. At that time only one of them was still in the active phase of the disease.

RESULTS

The results obtained in patients with febrile acne conglobata are given in Table I. All the patients reacted negatively to tuberculin, 10/TU/ml as well as to trichophyton and oidiomycin. There was no response to DNCB sensitization in those 4 patients in whom it was performed.

The results obtained in the control group are given in Table II. Five of 7 patients responded to tuberculin, 10 TU/ml and 5 to oidiomycin. DNCB sensitization was performed in 5 patients, 3 of whom showed a positive result. The Schick test was negative in all patients. The transformation of lymphocytes by phytohaemagglutinin was normal in all patients.

Table I. Test reactions in 5 patients with febrile acne conglobata

Case	10 TU/ml	Tricho- phytin	Oidio- mycin	DNCB 0.1%
1	—	—	—	—
2	—	—	—	—
3	—	—	—	—
4	—	—	—	Not done
5	—	—	—	—

Table II. Test reactions in 7 control patients

Case	10 TU/ml	Tricho- phytin	Oidio- mycin	DNCB 0.1%
1	+	—	+	Not done
2	+	—	+	—
3	+	—	—	+
4	—	—	—	—
5	+	—	+	Not done
6	+	—	—	+
7	—	—	—	+

All the febrile acne patients showed negative results to the epicutaneous tests. In the control group one patient had positive reactions to thiomersal and oil of turpentine, but there was no history of allergy.

COMMENTS

The patients with febrile acne conglobata showed negative results in all cutaneous *in vivo* tests. In particular, the negative result to oidiomycin tests was surprising, considering that all the patients had some overgrowth of candida due to the prolonged antibiotic treatment. Negative reaction to Schick toxin is normal.

In the control group only one of 7 patients showed negative results to all cutaneous *in vivo* tests.

Our series of patients with septic acne conglobata is small. Nevertheless it seems likely that these patients have a weakness in their delayed hypersensitivity. The primary failure is not likely to be in the lymphocytic function, as the patients show normal PHA stimulation.

The weakness in delayed hypersensitivity may be of importance in the pathogenesis of febrile acne conglobata.

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