

Urticaria/arthritis syndrome: report of four B51 positive patients

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SUMMARY The development of articular manifestations in the course of chronic urticaria or urticarial vasculitis has been widely reported. It is not completely clear, however, whether common pathogenetic mechanisms are involved in all patients with these clinical features. Four consecutive patients with simultaneous urticarial and articular manifestations, but without any evidence of an immune complex mediated disease, are described. The HLA-B51 antigen was positive in all these patients, suggesting that a common genetic background may be present in some cases of urticaria with articular complaints.

Key words: HLA antigens, Behçet's syndrome, urticarial vasculitis, chronic urticaria.

It is known that articular manifestations may be present in the course of chronic urticaria.^{1,2} Patients developing simultaneously arthritis (or arthralgia) and urticaria, with or without other systemic features, do not appear to be homogeneous from the clinical, immunological, and histopathological points of view, however. Thus an immune complex mediated disease is evident only in about half of the cases,¹ and different degrees of histological damage have been reported to be present in skin biopsy specimens.^{3,4} We recently observed four consecutive patients with chronic urticaria and articular complaints, without any evidence of an immune complex mediated disease, who showed a common genetic background, the HLA-B51 antigen.

Patients and methods

The serological profile of the patients was defined by evaluating the following: total haemolytic complement (CH₅₀) using the method described by Kent and Fife,⁵ C3 and C4 fractions using a nephelometric method, C1 esterase inhibitor by radial immunodiffusion (Behringwerk, Marburg, West Germany), antinuclear antibodies by indirect immunofluorescence on rat liver sections, and antibodies to extractable nuclear antigens by counterimmuno-

electrophoresis.⁶ Circulating immune complex concentrations were detected by two enzymatic competitive methods using C1q⁷ or bovine conglutinin (K)⁸ as recognition units. Direct immunofluorescent studies on skin biopsy specimens were carried out in two patients using fluoresceinated sera against immunoglobulins and complement fractions. HLA typing was performed by the method of Terasaki *et al.*⁹

Case reports

Tables 1 and 2 summarise the main clinical, serological, and histological features of the four patients.

PATIENT 1

In November 1986 a 38 year old man began to complain of evening fever and flares of diffuse urticaria accompanied by facial angio-oedema and swelling or pain, or both, in the hands, wrist, knees, ankles, and feet. The duration of the urticarial arthritis episodes was between four and 24 hours. As the situation did not improve he was admitted to our rheumatic unit in March 1987. Table 2 indicates the laboratory results obtained at that time. A skin biopsy in the area of an active urticarial lesion showed a histological picture of leucocytoclastic vasculitis. By contrast, direct immunofluorescent studies were negative for cutaneous deposits of immunoglobulins or complement fractions. HLA typing was A9, A29; B38, B51.

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Table 1 Main clinical and epidemiological features of the patients

Patient No	Age (years)	Sex	Urticaria flare duration (h)	Articular features	Other features	Facial angio-oedema	Effective treatment
1	38	M	>4 and <24	Arthritis	—	Present	Corticosteroid
2	35	F	>4 and <24	Arthritis	—	Present	Corticosteroid, indomethacin, phenylbutazone
3	24	M	>4 and <24	Arthritis	—	Present	Corticosteroid
4	28	F	>4 and <24	Arthralgia	Abdominal pain	Present	Corticosteroid

The urticarial flare and articular features occurred concurrently in all patients.

The urticarial flares and arthritis improved only after corticosteroid treatment, and, at present, after a progressive tapering of corticosteroid dosage the patient remains free from symptoms by taking 4 mg of 6-methylprednisolone daily.

PATIENT 2

A 35 year old housewife started complaining of nocturnal episodes of urticaria in the arm and leg in April 1983. A year later, evening fever, facial angio-oedema, and arthritis (sometimes arthralgia only) in the hands, wrists, elbows, shoulders, hips, knees, and feet appeared, together with the urticarial episodes. Routine blood examination showed an increase only in the erythrocyte sedimentation rate (90 mm/1st h), together with a positive C reactive protein. A skin biopsy specimen showed the presence of mild perivascular infiltrates of mononuclear cells. The patient recovered after corticosteroid treatment, but in December 1984 she again complained of diffuse urticarial lesions and arthritis in the hands, wrists, knees, and ankles. She was admitted to our rheumatic unit in March 1985. Table 2 lists the data and immunological parameters obtained at that time. Immunofluorescent studies on the skin were negative. A clinical remission was obtained by corticosteroid treatment. In November 1985, however, further acute episodes of urticaria and arthritis occurred, and the patient was again admitted to hospital. The only abnormal laboratory data were erythrocyte sedimentation rate 65 mm/1st h, C reactive protein 156 mg/l, α_2 -globulins 8.7 g/l, and white blood cell count $23.9 \times 10^9/l$. HLA typing was A2, A30;B51, -;Cw4.

After about one month of corticosteroid treatment she recovered and has been in remission ever since without any treatment.

PATIENT 3

A 24 year old man was referred to our rheumatic unit in May 1987 for the evaluation of arthritis and urticaria. He had been well until 1981 when recur-

rent episodes of a diffuse urticarial rash occurred. In the following months the patient also developed recurrent short (<24 hours) attacks of arthritis in the knees, wrists, ankles, proximal phalangeal joints, and metacarpophalangeal joints of the hands. Acute phase reactants, rheumatoid factor, and antinuclear antibody tests were persistently negative. A diagnosis of palindromic rheumatism was made, and he was treated with tiopronin for the following five years. In August 1986 urticaria reappeared, and in the following months the patient experienced numerous episodes of diffuse urticaria and facial angio-oedema with concurrent short lasting arthritis in the wrists, knees, and ankles. Table 2 shows the results of the laboratory investigation. Skin biopsy on an urticarial lesion showed the presence of mild perivascular infiltrates of mononuclear cells. The patient was effectively treated with 15 mg/day of prednisone, which was subsequently tapered to the current daily dose of 2.5 mg.

PATIENT 4

A 28 year old woman complained of fever, facial angio-oedema in March 1987, and after a few days developed diffuse urticarial lesions, abdominal pain, and contemporary arthralgia without any clear inflammatory feature in the shoulders, elbows, wrists, and knees. Every episode lasted for no more than 24 hours and disappeared after corticosteroid treatment. Table 2 reports the main laboratory investigations. HLA typing was A2, -;B18, B51. After progressive tapering of corticosteroid the patient remained well until November 1987, when a mild flare of urticaria recurred.

Discussion

These four consecutive patients presented with a clinical picture characterised by recurrent episodes of urticaria and concomitant arthritis (arthralgia in case 4). Furthermore, certain clinical and immuno-

Table 2 Main laboratory and histological data of the patients

Patient No	ESR* (mm/1st h)	CRP* (mg/l)	α_2 -Globulins (g/l)	WBC* ($\times 10^9/l$)	Ig (G, A, M, E)	ANA*	Anti-ENA Ab*	Complement profile (C3, C4, CH ₅₀)	CI-INH*	CIC* (C1q, K)	HLA-B51	Skin histology
1	13	<5	8.3	10.9	Increased IgA	Neg.	Neg.	Normal	Normal	Normal	Positive	LV*
2	65	156	8.7	23.9	Normal	Neg.	Neg.	Normal	Normal	Normal	Positive	Mild MCI*
3	27	45	6.8	11.7	Normal	Neg.	Neg.	Normal	Normal	Normal	Positive	Mild MCI
4	42	10	7.8	10.9	Normal	Neg.	Neg.	Normal	Normal	Normal	Positive	ND*

*ESR=erythrocyte sedimentation rate; CRP=C reactive protein; WBC=white blood cell count; ANA=antinuclear antibodies; anti-ENA Ab=antibodies to extractable nuclear antigens; CI-INH=C1 esterase inhibitor; CIC=circulating immune complexes; LV=leucocytoclastic vasculitis; MCI=mononuclear cell infiltrates; ND=not done.

logical features were common to these patients: (a) the simultaneous appearance of articular manifestations and urticarial hives; (b) the absence of any previous personal or family history of allergic diseases; (c) the duration of every flare was longer than four hours and shorter than 24 hours; (d) an increase in erythrocyte sedimentation rate, α_2 globulins, C reactive protein (in three out of four patients), and white blood cell count, whereas antinuclear antibodies, antibodies to extractable nuclear antigens, IgE, complement profile, and circulating immune complex concentrations were all normal; (e) the presence of a common genetic marker, the B51 antigen. By contrast, our patients differed in (a) the clinical course, which became chronic in patients 1 and 3, and underwent spontaneous remission or remission after treatment in the others; (b) the histological findings, which were indicative of leucocytoclastic vasculitis in patient 1 but showed only mild mononuclear cell infiltrates in patients 2 and 3.

The simultaneous development of articular manifestations in patients with the chronic urticarial syndrome is not uncommon.^{1,2} Arthralgia or arthritis is reported in 22 to 100% of patients with chronic urticaria or the urticaria-angio-oedema syndrome.³ As a cutaneous small vessel vasculitis has been demonstrated in some of these patients the term urticarial vasculitis has been suggested to define this form.¹⁰ When the patients reported to have urticarial vasculitis are examined, however, it becomes evident that clinically and immunologically they are a non-homogeneous group.^{1,4,10,11} Extra-articular and extracutaneous manifestations, such as abdominal pain, glomerulonephritis, and neurological involvement, are reported in a minority of patients. In addition, about half the cases showed signs of an immune complex mediated disorder, like hypocomplementaemia, and the presence of small size circulating immune complexes.¹² It thus appears that the spectrum of urticarial vasculitis is wide and probably includes different subsets of patients—for example, those with evidence of a systemic immune complex mediated disorder that is similar to connective tissue disease¹² and, by contrast, those without any immunological abnormality or signs of symptoms of systemic involvement.^{1,11} It may be that different pathogenetic, environmental, or genetic factors underlie the pathogenesis of the different variants of this disorder. In our four cases a common genetic marker was discovered, the B51 antigen. This finding is significant with respect to the prevalence of the B51 antigen in the healthy Caucasian population (12.6%, $p < 0.001$, when a binomial distribution is considered).¹³

The B5 antigen, and particularly its split the B51

has been reported to be associated with Behçet's disease in Japan,¹⁴ Mediterranean areas,^{15 16} including Italy,¹⁷ but not in the United Kingdom¹⁸ or in North America.¹⁹ The role of this genetic marker in the pathogenesis or in the clinical behaviour of Behçet's disease is completely unknown, however. On the other hand, the patients described here did not meet the diagnostic criteria for Behçet's disease as they did not complain of its typical ocular, mucocutaneous, and neurological manifestations.²⁰ In addition, urticarial lesions have never been described among the different cutaneous features of this disorder.²¹ The report of this small group of patients with a B51 related urticaria/arthritis syndrome suggests that some genetic analogies may be present. Similar pathogenetic mechanisms could be involved in some patients with both urticarial vasculitis and Behçet's disease. In addition, the association with the B51 antigen could characterise a separate subset of patients with the urticaria/arthritis syndrome without any evidence of an immune complex mediated disorder.

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