Pruritus in parvovirus infection

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SUMMARY. An outbreak of slapped cheek syndrome (erythema infectiosum) occurred in Chepstow between March and June 1986. About 50 children with the illness were seen in one general practice. During the same period five women in the practice developed arthritis associated with human parvovirus infection and four of them suffered marked pruritus. It is suggested that if pruritus is a feature in any patient with an acute onset arthritis, parvovirus infection should be considered as a possible cause.

Introduction

Disturbing pruritus has been described before in human parvovirus infections,[1-3] but not as a frequent and prominent feature of arthritis caused by parvovirus infection in adults. As it is sometimes difficult to distinguish arthritis associated with human parvovirus infection from acute onset rheumatoid arthritis or seronegative arthritis it may be worthwhile to investigate for human parvovirus infection in adults presenting with an acute polyarthropathy associated with pruritus.

This paper reports five cases of arthritis associated with human parvovirus infection. In four of these cases moderate to severe pruritus was a feature.

Case 1

A 32-year-old woman, whose two children had recently had slapped cheek syndrome, presented with marked pruritus of the knees and wrists and a mild transient erythematous rash on the chest. For two days prior to this she had suffered painful enlarged neck glands, nausea, malaise and an unproductive cough. She complained also of a stiff neck, painful, swollen, stiff wrists and right elbow and swollen hands, with painful hot proximal interphalangeal and metacarpophalangeal joints. Two days later she developed swollen knees which were so painful that she could hardly walk. Her joint symptoms and pruritus abated after about five days. Three weeks later she developed severe generalized pruritus, which lasted for about a month, together with pain, stiffness and swelling of both knees, which persisted for two months before resolving. Her pruritus did not respond to chlorpheniramine (4 mg three times a day) or astemizole (Hismanal, Janssen, 20 mg daily).

Two months after the onset of the illness, she was noted to have an antibody titre to double-stranded DNA of 1:80 (the upper limit of a normal titre is 1:40). A further two months later the titre had risen to 1:160 but by this time she was well. Her erythrocyte sedimentation rate was normal throughout the illness and she remains well.

Case 2

A 36-year-old woman presented with intense pruritus of the scalp, arms and feet, which lasted for one week. She had no rash. For the first three days she had a painful cervical lymphadenopathy. As this settled she developed a severe arthritis, with pain and stiffness in her neck, shoulders, right elbow and wrists and puffy swollen hands, with stiff tender proximal interphalangeal and metacarpophalangeal joints. Her knees and ankles were swollen and stiff, making walking difficult. After two weeks, the arthritis became migratory, with different joints being more severely affected each day. Her right elbow continued to be most severely affected and three weeks into the illness she developed a right ulnar nerve paralysis, which only resolved as the arthritis settled over the next two months. The paralysis was treated with a long arm splint held at 70° flexion at the elbow. Interestingly she developed a mild neutropenia in the first week of the illness which lasted for six weeks. At its worst, this was 37% of 3.2 x 10^9 white blood cells per litre.

This patient had had no known contact with anyone suffering from slapped cheek syndrome, but in 1984 she had had a rubella arthropathy lasting for six weeks.

Case 3

A 15-year-old girl presented with the typical rash of slapped cheek syndrome and moderate generalized pruritus which lasted for five days. She had had no prodromal symptoms. Two days after the pruritus had settled, she developed pain and stiffness in her hips and both knees which lasted for about a week before settling completely. She had had no known contact with anyone suffering from slapped cheek syndrome.

Case 4

A 40-year-old woman, whose son had had slapped cheek syndrome a week before, presented with swollen, stiff, painful knees and ankles and moderate pruritus affecting the arms and legs. She had also noted a fine macular rash on both legs, which only lasted for about six hours. She had had no prodromal symptoms. On examination, both knees and ankles had small effusions and were clinically inflamed. Her pruritus settled after about two days, but she continued to have persistent migratory joint pains in her arms, as well as painful, stiff, swollen knees and ankles for a month. No acute stage serology was performed on this woman. A blood sample taken six months after the infection suggested recent, though not very recent, infection with human parvovirus. The sample showed no evidence of recent rubella infection, but provided evidence of immunity.

Case 5

A 40-year-old women presented with a mild transient erythematous rash and this was followed by arthropathy affecting the knees and ankles which lasted for about a month. She had no pruritus. A blood test showed an antibody titre of 1:64 to adenovirus suggesting infection at some time.

Table 1 shows the results of serology for human parvovirus antibodies, using antibody capture radioimmunoassay, for the five women.[4] It also shows their rubella status. Cases 1–4 did not have their blood samples tested for viruses other than human parvovirus but no other clinically recognizable infections were noted to be epidemic at the time of this outbreak of parvovirus infection. None of the women were pregnant at the time of infection.

Discussion

Since the identification of human parvovirus as the causative organism of slapped cheek syndrome (erythema infectiosum),[5] published reports have made it clear that most cases of the illness occur in children and that most children are only mildly

Table 1. Results of serology for human parvovirus antibodies for the five women together with their rubella status.

Case	Date of onset of illness	Date of sample and Ig titre (RIA units) 1st sample	2nd sample	Laboratory comment	Rubella status
1	18.3.86	19.3.86 IgM 68	27.3.86 IgM>100	Positive	Immune
2	13.6.86	24.6.86 IgM 68	8.7.86 IgM 24	Positive	Immune
3	9.5.86	13.5.86 IgM 10.5 IgG>100	22.5.86 IgM 5.4 IgG>100	Positive	Immune
4	5.3.86	One sample only 17.9.86 IgM 1 IgG 100		High IgG titre suggestive of recent though not very recent infection	Immune
5	9.4.86	9.4.86 IgM 55	30.4.86 IgM 25	Positive	Immune

RIA = radioimmunoassay. IgM = anti-human parvovirus immunoglobulin M titre. IgG = anti-human parvovirus IgG titre.

affected. During an outbreak of the illness relatively few adults will be seen with the disease.[6] In this series approximately one adult presented for every 10 children.

Recent reports of pruritus in human parvovirus infection have included that of an adult man with intense itching without a rash, lasting for one week, associated with muscle pains and puffy hands, wrists and feet;[2] the description of disturbing itch associated with a slapped cheek rash in 31% of patients in a primary school outbreak;[1] and a mildly itchy erythematous rash reported by 13 out of 27 adults suffering arthritis associated with human parvovirus infection.[3] In the outbreak described here, four of the five women seen had moderate to severe pruritus; only one of the women had the typical slapped cheek rash, while the others had an atypical erythematous rash, or none at all.

All of the patients in the five case histories reported here were women and we were not aware of any men affected in the outbreak. The predominance of women affected by arthritis associated with human parvovirus infection tallies with previous reports.[3,7]

In three of the cases described here it was difficult to clinically distinguish arthritis associated with human parvovirus infection from acute onset rheumatoid arthritis or seronegative arthritis. Other recently published reports have mentioned the same difficulty.[3,7] Thus investigation for human parvovirus infection would appear worthwhile in any adult who presents with an acute polyarthropathy associated with pruritus, even in the absence of other symptoms.

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