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# Fever, diffuse rash and arthralgia

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## CASE REPORT

A 36-year-old woman was sent to the emergency department because of fever, rash and arthralgia, which started two days ago. Her medical record was negative. She was the mother of three healthy children, and reported no exotic travelling. She reported a negative parvo-B19 serology tested two years earlier during her last pregnancy. At physical examination the patient was rather ill, febrile (38.4°C) and haemodynamically stable. Her cheeks were markedly red (*figure 1*)

and there was a maculopapular rash on trunk and extremities, with visible arthritis of the small joints of both hands (*figure 2*) and feet, wrists and knees. Laboratory examination analysis revealed: haemoglobin 7.2 mmol/l, leucocyte count  $11.1 \times 10^9/l$ , thrombocyte count  $287 \times 10^9/l$ , C-reactive protein 115 mg/l, aspartate aminotransferase 108 U/l, alanine aminotransferase 213 U/l, alkaline phosphatase 167 U/l and gamma-glutamyl transpeptidase 197 U/l.

Figure 1. Red cheeks



Figure 2. Arthritis of the small joints



WHAT IS YOUR DIAGNOSIS?

See page 81 for the answer to this photo quiz.

FEVER, DIFFUSE RASH AND ARTHRALGIA  
ANSWER TO PHOTO QUIZ (ON PAGE 80)

## DIAGNOSIS

The differential diagnosis of fever, rash and arthralgia is broad and contains autoimmune disorders, and viral and bacterial infections. Because the medical history was completely negative and signs and symptoms developed within two days, an infectious origin was suspected. The bacterial diseases considered were meningococcosis, group A streptococcal infections and leptospirosis. For that reason treatment with ceftriaxone and acetylsalicylic acid was started. Possible viral infections included Rubella virus, hepatitis B virus, CMV and human parvovirus B-19 (HPV-B19).

Further laboratory analysis showed a positive IgM and polymerase chain reaction (PCR) for parvo-B19 virus. Blood cultures were negative and the antistreptolysin titre remained 320. The fever normalised and the arthritis disappeared within four days, the rash remained visible for three days, and the arthralgia persisted for two to three weeks.

The fifth erythematous exanthema of childhood, also called 'slapped-cheek syndrome' was first described in 1905.<sup>1</sup> In 1983 HPV-B19 was found to be the causative agent. The target of the virus is the blood group P-antigen, which is present on red cell membranes, but also on platelets, heart, liver, lung kidney, endothelial and gastrointestinal smooth muscle and synovial cells.<sup>2</sup>

Classically, infections occur during outbreaks at schools and may be asymptomatic in children.<sup>2</sup> The frequency of positive serology increases with age; 50% are positive at the age of 15 and 80 to 100% at the age of 70 years.<sup>3</sup>

The clinical features of HPV-B19 are: (1) Erythema infectiosum characterised by erythema of the cheeks (slapped cheeks, see *figure 1*), followed by a maculopapular rash on trunk and limbs; (2) Anaemia due to infection of erythroid precursor cells in the bone marrow;<sup>2</sup> (3) Arthralgia and arthritis characterised by a symmetrical pain, swelling and stiffness of mainly the small joints of hands, knees and feet. This feature is more often seen in adults than in children. Women are more commonly affected than men (60 vs 30%); (4) Increased foetal death rate (9%) after maternal infection during pregnancy. Under normal circumstances the disease is self-limiting and requires no therapy, unless anaemia is severe.

## REFERENCES

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2. Van Elsacker-Niele AM, Kroes AC: Human parvovirus B19: relevance in internal medicine. *Neth J Med*. 1999;54:221-30.
3. Van Elsacker-Niele AM. Human Parvo B19-clinical consequences of infection [Thesis/Dissertation]. Leiden, 1998.