

Generalised edema with human parvovirus B19 infection

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DESCRIPTION

A 46-year-old woman presented with a 14-day history of generalised oedema and shortness of breath and a weight gain of 6 kg in 1 week. One month previously, she experienced high-grade fever and malaise without arthralgia. The fever spontaneously resolved after 1 week, but slight erythema was observed on her trunk and limbs. She had not taken any medications. We observed bilateral pitting oedema of the lower legs (pit recovery time >20 s; [figure 1](#)) and forearms. Her heart and lung sounds were normal.

The results of the initial laboratory tests were as follows: leucocyte count, $4.63 \times 10^9/L$; haemoglobin, 100 g/L; red blood cell count, $3.14 \times 10^{12}/L$; mean corpuscular volume, 98.1 fL; platelet count, $222 \times 10^9/L$; serum creatinine, 1.02 mg/dL; blood urea nitrogen, 18.4 mg/dL; total-bilirubin, 0.5 mg/dL; aspartate aminotransferase, 38 U/L; alanine aminotransferase, 47 U/L; serum lactate dehydrogenase, 280 U/L; free T4, 1.05 ng/dL; thyroid-stimulating hormone, 0.90 μ IU/mL; serum albumin, 3.0 g/dL and C reactive protein, 0.24 mg/dL. Urinalysis showed no hematuria or proteinuria. Brain natriuretic peptide level (194.2 pg/mL) was elevated; and rheumatoid factor and antinuclear antibody levels were normal. Chest X-ray showed bilateral pleural effusion ([figure 2](#)). Additional laboratory tests were positive for anti-human parvovirus B19 (anti-B19V) IgM (9.80) using enzyme immunoassays. A diagnosis of B19V infection with generalised pitting oedema was made. Symptoms improved following diuretic administration for 1 week ([figures 1 and 2](#)).

B19V infection in immunocompetent adults often presents with arthralgia, and typical facial rash with slapped-cheek appearance is rare.¹ There were few reports of generalised oedema in adults.¹⁻⁴ This case did not occur during an epidemic of B19V, however, it has been reported that generalised oedema were often observed during the B19V epidemic.⁴ Compared with B19V-induced fetal hydrops, cardiac failure and hemolysis are unlikely to be the cause of oedema in adults. In this case, causes of oedema such as abnormal thyroid function, hypoalbuminaemia, liver cirrhosis and glomerulonephritis could be excluded from the physical examination and laboratory findings. The

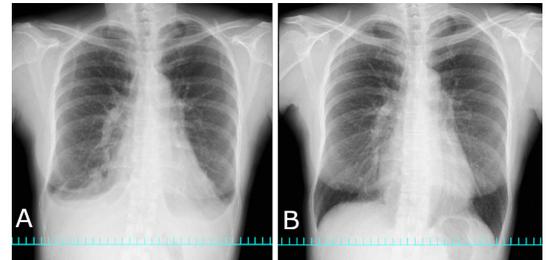


Figure 2 Pleural effusion (A) resolved after 2 weeks (B).

mild normocytic anaemia improved spontaneously and was determined to be due to a transient viral infection. Physical examination and normal ECG and echocardiography results showed no signs of myocarditis, pericarditis or heart failure. It was suggested that mildly elevated BNP was due to the atrial volume overload caused by the transient increase in fluid volume.

Generalised oedema without heart or renal failure caused by parvovirus has been reported. The presentation of generalised oedema suggests a capillary leak syndrome-like mechanism, but the aetiology remains to be elucidated.¹ The time from onset to appearance of oedema is often delayed (4–13 days), with a weight gain of 2.5–7 kg.⁴

In general, the prevalence of B19V-specific antibodies increases with age, however, it has been reported that about half of women of childbearing age was negative for human parvovirus IgG.^{5,6} B19V infection should be considered as a differential diagnosis of acute pitting oedema especially in susceptible adults with a recent history of infection.

Learning points

- ▶ Human parvovirus B19 (B19V) infection is a rare cause of an acute generalised oedema in adults.
- ▶ Unlike B19V-induced fetal hydrops, the generalised oedema in adults is rarely caused by heart failure, but the mechanism is still unknown.
- ▶ The oedema with B19V infection is self-remitting but some cases need diuretics for excessive retention of body fluids.

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Figure 1 Pitting oedema (A, arrow) resolved after 2 weeks (B).



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