

## Polyarteritis nodosa and parvovirus B19 infection

SIR,—Parvovirus B19 is the agent most commonly responsible for acute arthritis in children and adults,<sup>1,2</sup> and several reports have described parvovirus infection presenting with vascular purpura.<sup>3-5</sup> Although infection with human parvovirus B19 has not been previously associated with polyarteritis nodosa, parvovirus infection has been associated with arteritis in animals, specifically in Aleutian minks,<sup>6</sup> in whom a chronic wasting disease develops, eventually resulting in death. The clinical spectrum of human parvovirus B19 is still expanding; brachial plexus neuropathy associated with acute infection has been reported.<sup>7</sup> We present a patient with biopsy-proven polyarteritis nodosa that developed concurrently with serological evidence of acute infection with parvovirus B19.

A 57-year-old white woman noted a sore red lump on the lateral right calf in January, 1991, which reached a diameter of 10 cm eight weeks later. Biopsy of the lesion was done, and she also underwent a total abdominal hysterectomy for post-menopausal bleeding. Biopsy showed necrotising vasculitis of polyarteritis nodosa type (PAN). Other symptoms included severe headaches, nausea, vomiting, migratory arthralgias of the hands, and intermittent foul-smelling diarrhoea without abdominal pain, and she had lost 4.5 kg in weight. She had had hepatitis as a child, oligoarthritis of the right knee and ankle in 1982 that resolved with anti-inflammatory drugs over a few months, trigeminal neuralgia in the remote past, and left bundle branch block for several years. She did not smoke or drink. She had been started on premarin 0.625 mg and fluoxetine 20 mg daily after hysterectomy. In April, 1991, her blood pressure was 180/100 mm Hg. She had a painful papular erythematous rash of the hard palate. A residual tender nodule of the right calf 3 cm in diameter was still palpable under the biopsy scar. Cardiopulmonary examination revealed a loud first heart sound without a murmur and clear lungs. Liver span was 10 cm, the spleen tip was palpable, and she had numbness of the right foot in the distribution of the superficial peroneal nerve.

Complete and differential blood counts and chemistry profile were normal. Westergren sedimentation rate was 86 mm/h and urine analysis showed trace protein and 20–50 red cells with occasional white cells. Rheumatoid factor was negative, antinuclear antibody 1/40 homogeneous. Creatine kinase and C3 and C4 complement concentrations were normal. Antineutrophil cytoplasmic antibody was negative, as were antibodies to hepatitis B and C viruses from *Borrelia burgdorferi*. IgM antibodies to human parvovirus B19 were positive by western blot, whereas IgG antibodies were absent. A month later IgM antibodies were undetectable and IgG antibodies to this virus developed, which was consistent with serological conversion due to acute infection. ELISA tests were not available at our institution at the time. A D-xylose breath test was abnormal, suggesting malabsorption or injury of the bowel wall. She was started on antihypertensive drugs, oral cyclophosphamide 2 mg/kg daily, and prednisone 1 mg/kg daily, and has done well. Re-examination of organs removed at hysterectomy failed to show evidence of PAN.

PAN is a necrotising vasculitis that affects the small and medium-sized muscular arteries and has been described in association with viral infections, especially hepatitis B virus.<sup>8</sup> Hepatitis C virus has been reported as a cause of small-vessel vasculitis.<sup>8,9</sup> Purpuric vasculitis of the smaller veins, arterioles, and capillaries can be the presenting feature of human parvovirus B19 infection.<sup>3,5</sup> As far as we are aware PAN in association with acute parvovirus B19 infection has not been reported in man. Our patient had polyarteritis nodosa proven by biopsy of a subcutaneous leg nodule and had evidence suggestive of acute infection with human parvovirus B19. Parvovirus antibody investigation was sought on the assumption that a positive IgG antibody response to parvovirus B19 might explain the episode of self-limited oligoarthritis that she had in 1982. Whether the evidence for acute infection with parvovirus B19 was coincidental to the development of the arteritis or a re-exacerbation of an earlier infection, it is likely that infection with this virus triggered the PAN syndrome, especially since arteritis is known to be associated with parvovirus infection in other

species.<sup>5</sup> The serological findings compatible with acute infection were unexpected. We believe that her episode of oligoarthritis in 1982 was due to parvovirus B19 and the later episode of PAN was secondary to a relapse or re-exacerbation of the parvovirus infection.

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## Is fever really a "side-effect" of biological response modifiers?

SIR,—In clinical trials of biological response modifiers such as tumour necrosis factor and interleukin-2 in cancer, fever tends to be identified as a "side-effect", so it is treated with paracetamol (acetaminophen) or some other analgesic/antipyretic drug. In the late 1800s some forms of cancer were treated by injections of "Coley's toxins", living cultures of *Streptococcus pyogenes* often mixed with other species of bacteria. It is probable that the fevers that developed in these patients were not reduced with antipyretic drugs. Indeed in the past two decades it has become clear that fever is a phylogenetically ancient event<sup>1</sup> and that increases in body temperature of the magnitude seen during fever have profound effects on specific and non-specific immunity.<sup>1-3</sup> It seems that fever enhances host defences. Since many tumours seem more sensitive to increases in temperature than normal cells are, I suggest that before fever in patients on treatment with biological response modifiers is "treated", careful consideration be given to the possibility that the fever might be helping the patient to rid himself or herself of the tumour.

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## Lack of effect of somatostatin and analogues in lymphorrhagia from ruptured thoracic duct

SIR,—The management of a chylothorax from a ruptured thoracic duct remains controversial.<sup>1</sup> Ulibarri et al<sup>2</sup> have claimed that intravenous administration of somatostatin may strongly reduce lymphorrhagia. By analogy with the effect of somatostatin on intestinal fistulae, such a beneficial effect would be of interest in the treatment of a high output of lymphorrhagia.<sup>3</sup> We report two cases of lymphorrhagia in which somatostatin or longacting somatostatin analogue ('Sandostatin') were used.

*Patient 1*—A 40-year-old man presented with a large apical mass in the left lung. The resected tumour weighed 1500 g and was histologically defined as a benign schwannoma. On the third