

- 3 Lange JMA, Parry JV, de Wolf F, Mortimer PP, Goudsmit J. Diagnostic value of specific IgM antibodies in primary HIV infection. *AIDS* 1988;2:31-5.
- 4 Connell JA, Parry JV. Detection of anti-HIV in saliva and urine at the time of seroconversion. *Clinical and Diagnostic Virology* 1994;1:299-311.
- 5 McAlpine L, Gandhi J, Parry JV, Mortimer PP. Thirteen current anti-HIV-1/HIV-2 enzyme immunoassays: how accurate are they? *J Med Virol* 1994;42:115-18.
- 6 Loussert-Ajaka I, Ly TD, Chaix MI, Ingrand D, Saragosti S, Courouze AM, et al. HIV-1/HIV-2 seronegativity in HIV-1 subtype O infected patients. *Lancet* 1994;343:1939-4.

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## Anticomplementary activity in serum samples from patients with acute parvovirus B19 infection

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### Abstract

**Of 65 serum samples submitted for diagnostic purposes which proved to be anticomplementary by complement fixation test, 49 were parvovirus B19 IgM positive. Forty four of the 49 serum samples were from patients with arthropathy. Acute parvovirus B19 infection should be suspected when a patient has symptoms of disease of the joints and the serum is anticomplementary.**

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Keywords: Parvovirus B19, immune complexes, arthropathy.

The complement fixation test (CFT) utilises the failure of complement induced lysis of sensitised red blood cells to detect immune complexes formed by the addition of a laboratory "test" antigen to a patient's serum containing specific antibody. CFT remains a widely used method for diagnosing viral and bacterial infections, but preformed immune complexes in a patient's serum may cause an "anticomplementary" effect in serum to which no "test" antigen has been added and render the test indeterminate.

We wish to report that this anticomplementary effect is frequently encountered in acute parvovirus B19 infection. Infection with parvovirus B19 has a spectrum of clinical manifestations and it is likely that the full range of parvovirus B19 disease is still to be resolved.<sup>1</sup> The reticular rash and acute polyarthralgia associated with parvovirus B19 infection are thought to be precipitated by immune complex deposition.<sup>2</sup> Adult polyarthropathy resulting from parvovirus B19 is easily confused with other symmetrical polyarthropathies.

### Methods

Over 15 months, Ashford Public Health Laboratory received 88 serum samples which proved to be anticomplementary during routine CFT examination. To date 43 of these unselected specimens have been examined retro-

spectively for evidence of parvovirus B19 infection. Twenty two anticomplementary serum samples from Norwich Public Health Laboratory (selected from patients with symptoms suggestive of parvovirus B19 infection) were also tested. Sequential serum samples from the same patient were often not anticomplementary after a period of two to three weeks.

### Results

Twenty seven of the 43 Ashford serum samples and all 22 Norwich serum samples were parvovirus B19 IgM positive by IgM capture radioimmunoassay.<sup>3</sup> All of the samples were parvovirus B19 DNA negative by dot blot hybridisation assay.<sup>4</sup> One of the 23 positive Ashford and two of the 22 positive Norwich serum samples were also positive for rheumatoid factor. The two rheumatoid factor positive Norwich serum samples were also weakly positive for rubella IgM.

### Discussion

The higher proportion of positive results for parvovirus B19 IgM in the Norwich serum samples is probably explained by the fact that they were preselected from patients with symptoms suggestive of parvovirus B19 infection. All had joint involvement and their mean age was 36 years.<sup>5</sup> Of the 27 of 43 parvovirus B19 IgM positive Ashford serum samples, 22 were from patients with joint involvement (mean age 39 years) but only one of 16 of the parvovirus B19 IgM negative samples were from patients with joint symptoms.

The presence of circulating immune complexes is a feature of parvovirus infections in humans and animals as exemplified by the severe immune complex glomerulonephritis of Aleutian disease in mink.<sup>6</sup> It is of interest that one of the parvovirus B19 IgM positive patients from Ashford also had glomerulonephritis confirmed by biopsy.

Clinical and laboratory staff should suspect acute parvovirus B19 infection when serum from an adult patient with joint symptoms is

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anticomplementary. Further work to confirm the nature of immune complexes associated with parvovirus B19 infection is warranted.

- 1 Anderson MJ, Pattison JR. The human parvovirus. (Brief review). *Arch Virol* 1984;82:137-48.
- 2 Keller ML. Human Parvovirus B19: Not just a paediatric problem. *Emerg Med* 1992;10:39-44.

- 3 Cohen BJ, Mortimer PP, Pereira MS. Diagnostic assays with monoclonal antibodies for the human serum parvovirus like virus (SPLV). *J Hyg* 1983;91:113-30.
- 4 Mori J, Field AM, Clewley JP, Cohen BJ. Dot blot hybridization assay of B19 virus DNA in clinical specimens. *J Clin Microbiol* 1989;27:459-64.
- 5 Joseph PR. Fifth Disease: the frequency of joint involvement in adults. *NY State J Med* 1986;86:560-3.
- 6 Porter DD. Aleutian Disease: A persistent parvovirus infection of mink with a maximal but ineffective host humoral immune response. *Prog Med Virol* 1986;33:42-60.

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## Expression of MHC class II antigens by placental villi: no relationship with villitis of unknown origin

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### Abstract

**The aim of the study was to determine whether immunoreactivity to major histocompatibility complex (MHC) class II antigens studied by immunohistochemistry could be used reliably to define villitis lesions in placenta. Eighteen placental sections with villitis and 32 without, as determined in a careful observer reproducibility study, were immunolabelled with a monoclonal antibody to monomorphic determinants of MHC class II antigens (CR3/43), using a standard avidin-biotin peroxidase technique. Placentas with villitis were found to express MHC class II antigens. However, some showed no immunoreactivity. Occasional villi unaffected by villitis, including those near placental infarcts, also expressed MHC class II antigens. The study therefore showed that immunohistochemistry cannot be used to define villitis of unknown aetiology. It provides further evidence of the difficulties that can arise when immunohistochemistry conflicts with previous light microscopy findings.**

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**Keywords:** Villitis of unknown aetiology, immunohistochemistry, MHC class II antigens, placental pathology.

Villitis of unknown aetiology (VUA) is associated with intrauterine growth retardation, preeclampsia, and stillbirth and may recur in subsequent pregnancies with similar associations. The essential feature of VUA is the accumulation of chronic inflammatory cells in the placental villous stroma.<sup>1</sup> Because no recognised infectious agent has been identified, it has been theorised that VUA is a marker of maternal immune attack on the fetal allograft<sup>2</sup> and a recent finding that these chronic inflammatory cells are of maternal origin would

lend support to this suggestion.<sup>3</sup> Expression of major histocompatibility complex (MHC) class II antigens by syncytiotrophoblast, macrophages, and vessels within placental villi has been cited as further evidence of immunopathology in the lesion and has been suggested as a marker for VUA, and been used to define the lesion.<sup>4-7</sup> To test this hypothesis, immunohistochemistry was performed on a series of placental cases that were the subject of a study to assess observer reliability in diagnosing villitis using conventional criteria.<sup>8</sup>

### Methods

Sequential 5 µm sections from 50 formalin fixed paraffin embedded placentas that were used for an observer reliability study<sup>8</sup> were rehydrated and later subjected to immunohistochemistry using a standard avidin-biotin-horseradish peroxidase technique with 3',3' diaminobenzidine tetrachloride as the chromogen. These slides had been carefully classified as showing villitis or not by three experienced pathologists separately on two occasions and in a third conjoint viewing. Sections were immunostained by overnight incubation with a 1:3000 dilution of a monoclonal antibody recognising the monomorphic determinants of the MHC class II antigens (CR3/43, Dako, Denmark). Negative controls were performed by replacing the primary antibody with normal goat serum and the use of irrelevant antibodies. A positive control on tonsil was run with each batch of immunostaining. The entirety of each slide was examined regardless of whether villitis was focal or diffuse, or absent.

### Results

MHC class II immunoreactivity by villous components was seen in 17 of the 18 cases considered to have villitis by a consensus viewing by

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