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.


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.1 The reticular rash and acute polyarthralgia associated with parvovirus B19 infection are thought to be precipitated by immune complex deposition.2 Adult polyarthropathy resulting from parvovirus B19 is easily confused with other symmetrical polyarthropathies.

Results
Twenty seven of the 43 Ashford serum samples were parvovirus B19 IgM positive by IgM capture radioimmunoassay.3 All of the samples were parvovirus B19 DNA negative by dot blot hybridisation assay.4 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.5 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.6 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

References

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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 reproductibility 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 low 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.

Methods
Sequential 5 μm sections from 50 formalin fixed paraffin embedded placentas that were used for an observer reliability study 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 joint viewing. Sections were immobilized by overnight incubation with a 1:3000 dilution of a monoclonal antibody recognizing 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...