Sarcoidosis and HTLV-1 infection

D H McKee, A C Young, M Haeney

An asymptomatic, homosexual, white man was found to have an abnormal chest x-ray. A presumptive diagnosis of sarcoidosis was made, but pulmonary function tests and a transbronchial biopsy were normal. He then remained asymptomatic for 10 years until he developed a progressive spastic paraparesis. At this point, antibodies to human T cell lymphotropic virus type 1 (HTLV-1) were identified in the serum and cerebrospinal fluid, and the diagnosis of HTLV-1 associated myelopathy was made, the history suggesting sexual exposure to HTLV-1 many years previously.

CASE REPORT

An asymptomatic 48 year old homosexual white man had a pre-employment chest x-ray that showed pronounced bilateral perihilar and pulmonary midzone interstitial and alveolar shadowing (fig 1). No cause was identified in the history for the abnormal radiological appearances, and no respiratory abnormalities were found on clinical examination.

Routine haematological and biochemical indices were normal; however, the serum angiotensin converting enzyme (ACE) concentration was raised at 80 IU/litre (normal 11–55). Human immunodeficiency virus (HIV-1 and HIV-2) antibody testing was negative, pulmonary function tests were normal, and transbronchial biopsy was unremarkable, with no evidence of granulomata. High resolution thoracic computerised tomography scanning demonstrated perihilar and subcarinal lymphadenopathy, with appearances of pronounced perihilar interstitial pneumonitis, in the absence of fibrosis. A presumptive diagnosis of sarcoidosis was made; the patient was treated conservatively and over the next nine years remained asymptomatic. The radiological appearances did not change and pulmonary function tests remained normal.

Ten years later he presented with difficulty in walking. On examination, there was a moderate spastic paraparesis, with disproportionately severe spasticity, the rest of the neurological examination being normal.

Investigations revealed a normochromic normocytic anaemia, a raised erythrocyte sedimentation rate of 62 mm/hour, continuing raised serum ACE concentrations at 70 IU/litre, and a polyclonal increase in serum immunoglobulins. An HIV-1 antibody test was positive. The CD4 count was 320 × 10⁹ cells/litre (normal, > 440) and the HIV viral load was 72 000 copies/ml. Magnetic resonance imaging of the spinal cord and brain was unremarkable. Cerebrospinal fluid (CSF) analysis revealed raised intrathecal IgG production and oligoclonal bands. A diagnosis of HIV related vacuolar myelopathy was considered, but because of his relatively immunocompetent state and the systemic inflammatory response, an alternative aetiology was sought. Further testing revealed antibodies to HTLV-1 in serum and CSF, and the diagnosis of HTLV-1 associated myelopathy was made. Anti-HTLV-1 antibody titres by gel particle agglutination were 1/512 in CSF and 1/16000 in serum. On further questioning, the patient gave a history of episodes of unprotected sexual intercourse with an individual from a highly HTLV-1 endemic area many years previously.

DISCUSSION

HTLV-1 was the first human retrovirus to be discovered and was initially reported as causing an aggressive T cell leukaemia/lymphoma. It was subsequently shown to be the primary cause of the progressive myelopathy previously called tropical spastic paraparesis, now known as HTLV-1 associated myelopathy (HAM/TSP). The virus is endemic in certain areas including Japan, the Caribbean, the Seychelles, and West Africa. Sporadic cases occur in Europe and the USA. Like HIV, transmission may be sexual, vertical, or via blood products.

HTLV-1 is also associated with a spectrum of extraneural inflammatory disorders, attributed to the fact that the viral tax gene transactivates many human proinflammatory genes.

Abbreviations: ACE, angiotensin converting enzyme; CSF, cerebrospinal fluid; HAM, human T cell lymphotropic virus type 1 associated myelopathy; HIV, human immunodeficiency virus; HTLV-1, human T cell lymphotropic virus type 1; TSP, tropical spastic paraparesis.
and symptomatic infection is accompanied by systemic inflammation, with a raised erythrocyte sedimentation rate and C reactive protein, polyclonal increase in immunoglobulins, and oligoclonal bands in serum and CSF. The virus has a pronounced tropism for the lung, the most common extraneuronal association of infection being lymphocytic alveolitis, which is reported in up to 80% of individuals with HAM/TSP and 30–60% of asymptomatic carriers. The radiological abnormalities include appearances very similar to those of sarcoidosis. Unlike sarcoidosis, there are no granulomata, and HTLV-1 proviral DNA may be isolated from bronchoalveolar lavage fluid by polymerase chain reaction. Other associations of HTLV-1 include arthritis, hepatitis, skin rashes, sicca syndrome, and uveitis. A high viral load is related to the development of both HAM/TSP and the extraneuronal immune disorders.

The association between HTLV-1 and sarcoidosis is complex. Clearly, given the spectrum of associated immune disorders, HTLV-1 infection may present with a syndrome very similar to sarcoid, and there are reports of cases in which sarcoidosis was diagnosed before the subsequent identification of HTLV-1 related aetiology.

“Tropical spastic paraparesis (TSP)” is a misnomer, HTLV-1 being transmissible to any racial group and geographical area in the same manner as human immunodeficiency virus (HIV). HTLV-1 associated myelopathy (HAM)/TSP should be considered in the differential diagnosis of myelopathy in the relatively immunocompetent HIV positive patient.

"Human T cell lymphotropic virus type 1 (HTLV-1) is associated with a spectrum of immune disorders, including a syndrome clinically indistinguishable from sarcoidosis."

“Tropical spastic paraparesis (TSP)” is a misnomer, HTLV-1 being transmissible to any racial group and geographical area in the same manner as human immunodeficiency virus (HIV). HTLV-1 associated myelopathy (HAM)/TSP should be considered in the differential diagnosis of myelopathy in the relatively immunocompetent HIV positive patient.

“Tropical spastic paraparesis (TSP)” is a misnomer, HTLV-1 being transmissible to any racial group and geographical area in the same manner as human immunodeficiency virus (HIV). HTLV-1 associated myelopathy (HAM)/TSP should be considered in the differential diagnosis of myelopathy in the relatively immunocompetent HIV positive patient.

Authors’ affiliations

D H McKee, A C Young, Department of Neurology, Greater Manchester Centre for Clinical Neurosciences, Salford M6 8HD, UK

M Haeney, Department of Immunology, Hope Hospital, Stott Lane, Salford M6 8HD, UK

The patient gave his informed consent for this case report to be published.

Correspondence to: Dr D H McKee, Department of Neurology, Greater Manchester Centre for Clinical Neurosciences, Hope Hospital, Stott Lane, Salford M6 8HD, UK; david.mckee490@freeserve.co.uk

Accepted for publication 19 January 2005

REFERENCES


www.jclinpath.com