**Ehrlichia chaffeensis**–Associated Cardiomyopathy in a Patient with AIDS

Human ehrlichiosis is usually manifested as a nonspecific febrile illness accompanied by cytopenias and abnormal liver function tests. A modest number of patients may also exhibit CNS manifestations, and occasionally patients may be extremely ill with multiorgan failure resulting in death. Cardiac involvement has been reported infrequently. We describe a patient with AIDS who presented with dilated cardiomyopathy and heart failure associated with an acute infection due to *Ehrlichia chaffeensis*.

A 33-year-old man, previously diagnosed with HIV infection (CD4 cell count of 45/mm³ 2 years before presentation), had a history of oral candidiasis and AIDS encephalopathy, which resolved after initiation of therapy with zidovudine, saquinavir, and trimethoprim-sulfamethoxazole. Two weeks after a routine follow-up visit, the patient was seen for evaluation of fever, chills, weakness, fatigue, and worsening dyspnea on 5 days’ duration. Further history taking revealed weight gain, swollen feet, and a cough. He had sustained numerous tick bites during the preceding weeks.

Physical examination revealed an acutely ill man with a temperature of 38.5°C, pulse of 110 beats per minute, and respirations of 20. Chest auscultation disclosed an S, gallop, no murmur, and bilateral basilar rales. Skin examination revealed a diffuse erythema with lesions consistent with tick bites. There was 2+ pitting edema of the ankles and feet. Laboratory evaluation revealed the following values: WBCs, 3,600/mm³ (65% neutrophils, 34% band forms, and 1% lymphocytes); hemoglobin, 11.9 g/dL; platelets, 2,200/mm³; aspartate aminotransferase (AST), 141 U/L (normal, 3–48 U/L); alanine aminotransferase (ALT), 64 U/L (normal, 30–64 U/L); and total bilirubin, 0.5 mg/dL. The serum sodium level was 127 mEq/L, and the serum creatinine level was 1.8 mg/dL. Chest radiography was consistent with congestive heart failure, and an electrocardiogram revealed sinus tachycardia. Echocardiography showed global hypokinesia and dilation with an ejection fraction of 40%, severe mitral regurgitation, and severe tricuspid regurgitation.

Blood was collected for PCR assay for *Rickettsia rickettsii* and *E. chaffeensis*. Treatment was begun with doxycycline, 100 mg orally twice daily, along with furosemide and potassium. Seventy-two hours later, the patient reported he had not had a fever for ~24 hours, and his shortness of breath was improved. Significant lower extremity edema remained, but his lungs were clear to auscultation. A laboratory evaluation revealed the following values: sodium, 132 mEq/L; creatinine, 1.5 mg/dL; WBCs, 2,600/mm³ (61% neutrophils, 10% band forms, 23% lymphocytes, and 6% monocytes); and platelets, 2,700/mm³. All laboratory values normalized within an additional 6 days. A PCR assay of whole blood utilizing the oligonucleotide primers HE-1 and HE-3 from the 16S rRNA gene of *E. chaffeensis* produced a 389-bp product, consistent with an infection due to *E. chaffeensis*. A follow-up examination 1 month after the illness found the patient well. A repeated echocardiogram revealed normal cardiac function.

Neither ehrlichiosis in AIDS patients nor cardiac manifestations associated with ehrlichiosis have been reported frequently. We found two patients with AIDS and ehrlichiosis for whom the infection resulted in death. No autopsy findings involving the heart were reported [1, 2]. Two patients with cardiac involvement during ehrlichial infections were identified; these infections also resolved completely after doxycycline administration [3, 4].

The pathogenesis of the cardiac involvement is unknown. In five patients who died and had autopsies performed, one autopsy revealed morulae in the vacuoles of 5% to 10% of perivascular mononuclear cells in the heart as well as other organs [5]. Another autopsy demonstrated morulae in mononuclear cells of the epicardium and other organs [6]. These cases suggest that acute monocytic ehrlichiosis can be associated with cardiac manifestations and that ehrlichiosis may cause a reversible cardiomyopathy.

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**BRIEF REPORTS**

**References**