Journal of Clinical Microbiology

Answer to July 2011 Photo Quiz

Michael E. Watson Jr., Gregory A. Storch, W. Michael Dunne Jr. and Carey-Ann D. Burnham

J. Clin. Microbiol. **2011, 49(7):2784. DOI: 10.1128/JCM.r00081-11.**

JOURNAL OF CLINICAL MICROBIOLOGY, July 2011, p. 2784 Vol. 49, No. 7
0095-1137/11/$12.00 doi:10.1128/JCM.r00081-11

Answer to Photo Quiz: Human Monocytic Ehrlichiosis Due to *Ehrlichia chaffeensis* Infection

(See page 2389 in this issue [doi:10.1128/JCM.00081-11] for photo quiz case presentation)

PCR of whole blood performed at St. Louis Children's Hospital was positive for *Ehrlichia chaffeensis* DNA, confirming the diagnosis of human monocytic ehrlichiosis (HME) that was suspected based on the clinical presentation and the finding of inclusion bodies (morulae) in the cytoplasm of CSF monocytes. Morulae were not found within monocytes in the peripheral blood smear, although the paucity of monocytes observed on the peripheral blood film might explain this finding. The patient was administered a total course of 7 days of treatment with oral doxycycline, the antibiotic of choice for both children and adults with ehrlichiosis. She defervesced within 24 h of the initiation of antibiotic therapy and was discharged to home shortly thereafter.

Human monocytic ehrlichiosis is a tick-borne illness due to infection with the rickettsia *E. chaffeensis* transmitted by the Lone Star tick (*Amblyomma americanum*) (1). Clinical features may include fever, headache, myalgias, rash, emesis, and diarrhea, with laboratory findings of thrombocytopenia, leukopenia, anemia, hyponatremia, and elevated transaminase levels (1, 3). Approximately 20% of patients with HME exhibit clinical evidence of CNS involvement (e.g., headache, photophobia, nuchal rigidity) (1). Over half of patients who undergo lumbar puncture exhibit abnormal CSF findings with, typically, a mildly elevated WBC count with a lymphocytic predominance, in addition to low to normal CSF glucose and normal to mildly elevated protein values (1, 2). Diagnosis of acute HME relies on a compatible clinical history coupled with supporting laboratory evidence of infection, including serology, PCR testing of whole blood, or the microscopic identification of morulae in smears of peripheral blood, buffy coat preparations, bone marrow, and CSF specimens (1, 2). The finding of morulae within monocytes can provide a rapid presumptive diagnosis of HME, but successful implementation of this technique, with its very low (<10%) sensitivity at the time of presentation (1), is dependent on the skill of the examiner.

REFERENCES

1. **Dumler, J. S., J. E. Madigan, N. Pusterla, and J. S. Bakken.** 2007. Ehrlichioses in humans: epidemiology, clinical presentation, diagnosis, and treatment. Clin. Infect. Dis. **45**(Suppl. 1)**:**S45–S51.
2. **Hongo, I., and K. C. Bloch.** 2006. *Ehrlichia* infection of the central nervous system. Curr. Treat. Options Neurol. **8:**179–184.
3. **Schutze, G. E., et al.** 2007. Human monocytic ehrlichiosis in children. Pediatr. Infect. Dis. J. **26:**475–479.

Michael E. Watson, Jr.
Gregory A. Storch
Department of Pediatrics
Washington University School of Medicine
St. Louis, Missouri 63110

W. Michael Dunne, Jr.
Department of Pathology & Immunology
Washington University School of Medicine
St. Louis, Missouri 63110

Carey-Ann D. Burnham*
Departments of Pediatrics and Pathology & Immunology
Washington University School of Medicine
660 S. Euclid Ave., Box 8116
St. Louis, Missouri 63110

*Phone: (314) 747-5185
Fax: (314) 454-2274
E-mail: Burnham_c@kids.wustl.edu