Closing the Brief Case: *Bartonella henselae* Endocarditis—a Case of Delayed Diagnosis

Kyle G. Rodino,^a Eric Stone,^b Omar Abu Saleh,^b Elitza S. Theel^a

^aDivision of Clinical Microbiology, Department of Laboratory Medicine and Pathology, Mayo Clinic, Rochester, Minnesota, USA

^bDivision of Infectious Diseases, Mayo Clinic, Rochester, Minnesota, USA

KEYWORDS *Bartonella*, infective endocarditis

ANSWERS TO SELF-ASSESSMENT QUESTIONS

1. Which of the following is the most sensitive noninvasive microbiologic assay for detection of suspected *Bartonella* spp. endocarditis?

- Blood culture
- Culture of heart valve tissue
- Bartonella* sp. IgG-specific serologic testing
- Broad-range 16S PCR and sequencing from heart valve tissue

Answer: c. Serologic testing for antibodies to *Bartonella* spp., particularly IgG-class antibodies, remains the most sensitive, noninvasive means by which to make a diagnosis of *Bartonella* endocarditis. Nucleic acid amplification tests (NAATs) on blood or blood fractions are notoriously insensitive and would only be preferred on explanted heart valve tissue.

2. A 63-year-old male originally from Brazil and now living in a homeless shelter presents to the emergency department with a fever, headache, rash, and bone pain in the shins, neck, and back. On examination, lice are visible on the patient's clothes and hospital bed sheets. Which of the following is the most likely causative organism?

- Bartonella henselae*
- Bartonella quintana*
- Bartonella bacilliformis*
- Bartonella alsatica*

Answer: b. *B. quintana* is transmitted by lice and is the most frequent *Bartonella* sp. associated with infection in homeless individuals, given the limited opportunities for routine hygiene and frequency of close living situations.

3. Antibodies to which of the following pathogens can lead to cross-reactivity on serologic assays for detection of *Bartonella* sp. antibodies?

- Anaplasma phagocytophilum*
- Brucella abortus*
- Coxiella burnetii*
- Treponema pallidum*

Answer: c. Among these options, antibodies to *C. burnetii* may lead to false-positive results on serologic assays for *Bartonella* spp. and vice versa. Cross-reactivity with *Chlamydia pneumoniae* and some spotted fever group *Rickettsia* has also been reported.

Citation Rodino KG, Stone E, Abu Saleh O, Theel ES. 2019. Closing the Brief Case: *Bartonella henselae* endocarditis—a case of delayed diagnosis. J Clin Microbiol 57:e00123-19. <https://doi.org/10.1128/JCM.00123-19>.

Editor Carey-Ann D. Burnham, Washington University School of Medicine

Copyright © 2019 American Society for Microbiology. All Rights Reserved.

Address correspondence to Elitza S. Theel, theel.elitza@mayo.edu.

K.G.R. and E.S. contributed equally to this work.

See <https://doi.org/10.1128/JCM.00114-19> in this issue for case presentation and discussion.

Published 26 August 2019

TAKE-HOME POINTS

- *Bartonella* sp. endocarditis is the second most common cause of culture-negative endocarditis following *C. burnetii*.
- Diagnosis of *Bartonella* sp. endocarditis is most frequently established by serologic testing. Molecular assays are insensitive in blood or blood fractions, and culture is not routinely recommended for this pathogen.
- A significant percentage of individuals may be seropositive for IgG antibodies to *B. henselae* at titers of $\leq 1:128$, and therefore diagnosis of a current *B. henselae* infection should be established based on titers of $\geq 1:256$ and/or on demonstrating a 4-fold rise in IgG antibody titers between acute and convalescent sera.