**Bartonella henselae**

**Disease Agent:**
- *Bartonella henselae*

**Disease Agent Characteristics:**
- Gram-negative bacillus or coccobacillus, aerobic, nonmotile, nonspore-forming, facultatively intracellular bacterium
- Order: Rhizobiales; Family: Bartonellaceae
- Size: 0.3-0.6 \( \times \) 0.3-1.0 \( \mu \)m
- Nucleic acid: Approximately 1900 kb of DNA

**Disease Name:**
- Cat scratch disease
- Cat scratch fever
- Bacillary angiomatosis
- Bacillary peliosis

**Priority Level:**
- Scientific/Epidemiologic evidence regarding blood safety: Theoretical
- Public perception and/or regulatory concern regarding blood safety: Absent
- Public concern regarding disease agent: Very low

**Background:**
- In 1909, A.L. Barton described organisms that adhered to RBCs.
- The name *Bartonella bacilliformis* was used for the only member of the group identified before 1993.
- Several other species of *Bartonella* are known to infect humans, but at present, *B. henselae* represents the most common infecting agent and the one of greatest concern.
- Stable in the population

**Common Human Exposure Routes:**
- Primarily by the bite or scratch of cats harboring the bacterium
- Recent evidence suggests exposure to infected fleas and ticks may also play a role.

**Likelihood of Secondary Transmission:**
- Unlikely

**At-Risk Populations:**
- Persons of all ages at risk, but primarily occurs in children following rough play with cats.
- Immunocompromised persons more likely to have complications

**Vector and Reservoir Involved:**
- Chronically infected cats
- Fleas and black-legged ticks (also called deer ticks) of the genus *Ixodes* may serve as vectors, but this has not been proven.

**Blood Phase:**
- Agent found in endothelial cells and associated with RBCs in symptomatic cases
- Occult bacteremia sometimes occurs in the absence of specific antibodies.

**Survival/Persistence in Blood Products:**
- A spiking study suggests that *B. henselae* added to RBCs can be recovered on solid media through 35 days of storage at 4°C.

**Transmission by Blood Transfusion:**
- Theoretical

**Cases/Frequency in Population:**
- 22,000 cases per year estimated in the US
- 2-6% in US blood donors
- Cumulative seroprevalence of 7.1% to *B. henselae* and *B. quintana* in US veterinary professionals

**Incubation Period:**
- 3-10 days to appearance of papule at inoculation site; regional adenopathy may follow after a few weeks

**Likelihood of Clinical Disease:**
- Relatively benign and self-limiting, lasting 6-12 weeks in the absence of antibiotic therapy

**Primary Disease Symptoms:**
- Generally mild infection at point of injury and lymphadenopathy involving nodes around head, neck, and upper torso
- Fever, headache, fatigue, nausea and vomiting, sore throat, and poor appetite also occur. Symptoms may be intermittent or chronic with a waxing and waning course.

**Severity of Clinical Disease:**
- More severe cases involve bacillary angiomatosis, Parinaud’s oculoglandular syndrome, and endocarditis.

**Mortality:**
- Unknown, but probably low

**Chronic Carriage:**
- Only very limited data to suggest the possibility of persistence in humans
- Persists in many animals, including cats
Treatment Available/Efficacious:

- Immunocompetent patients usually do not require treatment, but immunocompromised patients should be treated with macrolide antibiotics (erythromycin, azithromycin, or clarithromycin) or doxycycline.

Agent-Specific Screening Question(s):

- No specific question is in use.
- Not indicated because transfusion transmission has not been demonstrated
- No sensitive or specific question is feasible.

Laboratory Test(s) Available:

- No FDA-licensed blood donor screening test exists.
- Unlicensed IFA and PCR available
- In immunocompetent at-risk persons, diagnosis of the agent is enhanced by combining PCR with pre-enrichment culture.

Currently Recommended Donor Deferral Period:

- No FDA Guidance or AABB Standard exists.
- Prudent practice would be to defer donor until signs and symptoms are gone and any course of treatment is complete.

Impact on Blood Availability:

- Agent-specific screening question(s): Not applicable
- Laboratory test(s) available: Not applicable

Impact on Blood Safety:

- Agent-specific screening question(s): Not applicable
- Laboratory test(s) available: Not applicable

Leukoreduction Efficacy:

- Unknown

Pathogen Reduction Efficacy for Plasma Derivatives:

- Specific data indicate that the multiple steps in the fractionation process are robust and capable of inactivating and/or removing bacteria at concentrations that may be present in plasma.

Other Prevention Measures:

- None

Suggested Reading: