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Short Communication

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Babesia odocoilei Abounds in Canada: *Anaplasma phagocytophilum* is Scarce

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ABSTRACT

Multiple healthcare providers contend that anaplasmosis is the second most prevalent tick-borne zoonotic disease across Canada. However, in reality, human babesiosis caused by *B. odocoilei* is in second place. Patients are often bitten by *Ixodes* ticks, but can obtain this zoonosis via blood transfusion, organ transplantation or maternal-fetal transmission. *B*abesia *odocoilei*, a sequestering *Babesia* sp. has innate survival strategies that occlude capillaries and venules throughout the body. Fibrin-bonded entanglements form self-sustaining pockets, and block these tiny vessels. Immune systems become stuck in overdrive, and inflammation is unending. Chronic human babesiosis develops in 6 months as a result of persistent infection. Symptoms persist, and they may include crushing fatigue, brain fog, and cognitive impairment. Since fibrin-bonded entanglements occlude capillaries and venules, these compacted vessels are hard to penetrate and, consequently, this tick-borne zoonotic disease is recalcitrant to treat.

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Aljamaan et al. (2026), hereafter the authors, purport under "Key points" that "Anaplasmosis is the second most common tick-borne disease in Canada," [1]. The authors have not shown that *Anaplasma phagocytophilum* is in second spot. The authors detected *A. phagocytophilum* in a 79-year-old man in eastern Ontario, but there was no data to show that this tick-borne zoonotic pathogen is in *Ixodes* ticks across Canada. Based on several *Ixodes* tick studies, acarologists have found the Lyme disease bacterium, *Borrelia burgdorferi* sensu lato (s.l.) is positioned in first place and *Babesia odocoilei*, the causative pathogen of human babesiosis, is in second place [2-6]. The authors have overlooked human babesiosis caused by *B. odocoilei* — an insidious disease.

Surprisingly, in the Huronia area, we obtained a prevalence of 71% for *B. odocoilei* and, zero for *B. burgdorferi* s.l. and *A. phagocytophilum*. In this tick-host-pathogen study, *B. odocoilei* was clearly in first place.

Babesia odocoilei has been detected in blacklegged ticks, *Ixodes scapularis*, and western blacklegged ticks, *Ixodes pacificus*, in Canada. Cervids (i.e., white-tailed deer, *Odocoileus virginianus*; black-tailed deer, *Odocoileus hemionus*) are the principal reservoirs. Migratory songbirds play a major role in the wide dispersal of larval and nymphal *I. scapularis* continent wide [3], and some of these songbird-transported *Ixodes* ticks are infected with *B. burgdorferi* s.l. and *B. odocoilei*. *Ixodes scapularis* harbors at least seven pathogens that infect humans, and *B. burgdorferi* s.l. and *B. odocoilei* are common infectious agents. In Canada, acarologists found the ratio of *B. odocoilei* to *Babesia microti* was 60-1 in *I. scapularis* adults [3]. People are just as likely to contract human babesiosis caused by *B. odocoilei* as Lyme disease. This ectoparasite information was ignored in the authors' article. *Babesia odocoilei* can be in a co-infection or polymicrobial infection with other tick-borne zoonotic pathogens, such as *B. burgdorferi* s.l., but again, the authors provided no data. Table 2 lists anaplasmosis and Lyme disease, but does not list human babesiosis caused by *B. odocoilei*. Notably, this intraerythrocytic parasite can be transmitted to humans by *Ixodes* ticks, blood transfusion, organ transplantation, and maternal-fetal transmission.

Again, in Table 2, anaplasmosis and Lyme disease were cited, but there was no mention of human babesiosis caused by *B. odocoilei*. Furthermore, there were no citations to recognize our tick research. Human ethical review boards state that skirting other's research is a lack of transparency. Not taking the trouble to address *B. odocoilei* leaves patients in the lurch for proper treatment. We wonder how this article was prudently peer-reviewed when the reviewers ignored our peer-reviewed scientific research.

Since there are at least 111 valid *Babesia* species worldwide, it is important that molecular characterization is used to attain correct identification [7]. Furthermore, there was no monitoring of other tick-borne zoonotic pathogens associated with *I. scapularis* at the male subject's home.

The pathophysiology of human babesiosis caused by *B. odocoilei* is a novel science in medicine. Human babesiosis caused by *B. odocoilei,* is a single-celled, red blood cell parasite [8,9]. Kinetes, which are stored in the salivary glands of the *Ixodes* tick, are transmitted to the vertebrate host in a few minutes during the tick bite. In order for kinetes to adapt to a new environment,

they promptly convert to infective sporozoites as they enter the host. As well, during the tick bite, *B. odocoilei* goes directly from the salivary glands to the hypostome, and into the human. Interestingly, if present, the virus of Powassan Virus Disease is transmitted within 15 minutes. If the salivary glands are infected with *B. odocoilei* and Powassan virus, they are commingling on route to the host.

After the tick bite, circulating fibrinogen converts to fibrin, and the disease process gets underway. Fibrin adheres to the endothelium (cytoadherence) [10], and binds with uninfected Red Blood Cells (uRBCs) and infected Red Blood Cells (iRBCs), and the propagation and the clumping together of fibrin-bonded entanglements continues (sequestration) [10]. Right after infection of a sequestering *Babesia* sp., fibrin-bonded entanglements, which consist of uRBCs, iRBCs, and fibrin, occlude capillaries and venules. Sequestering *Babesia* spp. can sustain themselves within fibrin-bonded entanglements and, therefore, remain isolated from the circulating immune system and the spleen. On the contrary, non-sequestering *Babesia* (i.e., *B. microti*) allows the immune system, which consist of microphages, to function normally, and the spleen typically ensnares and destroys babesial trophozoites and merozoites. Patients with *B. microti* infection are normally much easier to treat successfully. With no tick testing, and no diagnosis and treatment, a child has no future. Linkwise an adult has no job and / or career.

Prevalent Symptoms

Human babesiosis caused by *B. odocoilei* can spearhead an array of symptoms that may include unrelenting fatigue, cognitive impairment, dementia, sweats (especially at night), anxiety, head pressure, difficulty remembering, lack of balance, unsteady gait, confused state, unexplained pain, disorientation, brain fog, weird/wild/scary dreams, heat and cold intolerance, and unyielding inflammation. Late-onset symptoms, common after 6 months, may include late-stage dementia, dyslexia (trouble reading and writing), chronic encephalitis, dizziness/burred vision, dystonia (involuntary muscle contractions), peripheral neuropathy (numbness, tingling), intolerance to mental exertion, shakes, backache, rib soreness, anger, rage, pathogen-induced depression, and suicidal/homicidal ideation.

The authors neglected key biomedical points: *B. odocoilei* is the second most prevalent tick-borne zoonotic pathogen; *I. scapularis* is the primary vector of *B. odocoilei*; white-tailed deer are the main reservoir of *B. odocoilei*; and migratory songbirds play a major role in the wide dispersal of *B. odocoilei*-infected ticks.

Acknowledgements

None.

Conflict of Interest

None.

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