

Importance of Knowing the Pathogens Carried by a Specific Tick Species
Removed from a Tick Bite Victim

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Quotation: "Lyme disease is not a synonym for all tick borne infections".

Specific tick species carry specific pathogens (See table 1). This fact alone makes it imperative that the tick species associated with a tick bite in a victim must be first carefully removed, identified, and then sent off to a DNA lab where specific pathogens carried within that tick be identified!!

Deer Tick (<i>Ixodes Scapularis</i>) Anaplasmosis (<i>Anaplasma phagocytophilum</i>) Ehrlichia (<i>Ehrlichia chaffeensis</i>) Mycoplasma (<i>Mycoplasma pneumoniae</i>) Mycoplasma (<i>Mycoplasma fermentans</i>) Powassan virus Lyme Disease (<i>Borrelia burgdorferi</i>) Lyme disease usually in Europe and Asia (<i>Ixodes ricinus</i>) these species now found in North America (<i>Ixodes scapularis</i>) (<i>Borrelia afzelii</i> , <i>Borrelia garinii</i>) Borrelia disease other than Lyme disease (<i>Borrelia mayonii</i>) Borrelia disease other than Lyme disease (<i>Borrelia miyamotoi</i>) Babesiosis (<i>Babesia microti</i> , <i>Babesia duncani</i> , <i>Babesia divergens</i>) Bartonella (<i>Bartonella henselae</i> , <i>Bartonella quintana</i>) Alpha Gal Syndrome
Dog Tick (<i>Dermacentor variabilis</i>) Tularemia (<i>Francisella tularensis</i>) Rocky Mountain Spotted Fever (<i>Rickettsia rickettsii</i>) <i>Rickettsia parkeri</i> (<i>Rickettsia parkeri</i>) <i>Rickettsia montanensis</i> (<i>Rickettsia montanensis</i>) Powassan virus
Brown Dog Tick (<i>Rhipicephalus sanguineus</i>) Rocky Mountain spotted fever (<i>Rickettsia rickettsii</i>)
Lone Star Tick (<i>Amblyomma</i>) Rocky Mountain spotted fever (<i>Rickettsia rickettsii</i>) Alpha Gal Allergy Ehrlichia (<i>Ehrlichia chaffeensis</i>) Bourbon virus Powassan virus Heartland virus
Asian Long Horn Tick (<i>H. longicornis</i>) Powassan virus Anaplasma (<i>Anaplasma phagocytophilum</i>)
Wood Tick (<i>Dermacentor andersoni</i>) Powassan virus Rocky Mountain Spotted Fever (<i>Rickettsia rickettsii</i>)

Table 1: List of tick species and the specific pathogens and pathogenic condition associated with same [1].

It is often the case that ticks are removed from a victim of tick bite and subsequently thrown away!!. Little regard is paid to the tick species or pathogen carriage known to be commonly associated within this tick species.

The response that I have given to physicians treating patients who are victims of tick bite, as well, as their patients is that flying blind is not the better option!!. It is of the utmost importance to know what the victim was potentially exposed to, as concern specific tick borne infections. This important information directs the doctor to order specific clinical lab tests needed to confirm or rule out pathogen presence in a tick bite victim, and thus provide the patient with a proper course of treatment.

A knowledge of tick pathogen carriage does not mean that every pathogen carried by a tick entered into the anatomy of the tick bite victim.

One must always remember that a tick bite holds the potential for a multipathogenic event, tick borne pathogens can be bacterial, parasitic or viral. In the case of bacterial pathogens (*Borrelia* species, *Bartonella* species, *Mycoplasma* species etc.) a treatment regimen of antibiotics is required. When dealing with parasitic tick borne pathogens like *Babesia* species, an anti-parasitic agent is called for. When dealing with such viral agents as Powassan virus, and Bourbon virus there currently isn't any available specific vaccine treatment [1]

It is time to put things in proper perspective, we are dealing with a broad array of tick borne diseases. Lyme disease in North America is a specific disease caused chiefly by the pathogen *Borrelia burgdorferi* [1,2]. In Europe, Lyme disease can be caused by *Borrelia garinii*, *Borrelia afzelii*, *Borrelia burgdorferi* [1,2].

Lyme disease is not a synonym for all tick borne infections!

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