

## **Powassan Virus, A Deadly Tick Borne Neuropathogen whose Potential Presence Must be Always be Considered in Endemic Areas of the USA and Canada**

**Robert-A Ollar\***

*Clinical Assistant Professor of Neurology, Department of Neurology, New York Medical College, Valhalla, New York, USA*

**\*Corresponding Author:** Robert-A Ollar, Clinical Assistant Professor of Neurology, Department of Neurology, New York Medical College, Valhalla, New York, USA.

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**“What makes the diagnosis of Powassan so difficult is that it shares many of the symptoms that have been commonly associated with Lyme disease”**

The Powassan virus is a member of the *Flavivirus* Genus. It is an RNA virus, and its presence was first reported in Powassan in the Canadian Province of Ontario back in the year 1958 [1-3]. This pathogen is the only flavivirus that is associated with ticks that is found to occur in the Western Hemisphere of the globe [1-3].

There two lineages associated with this virus [1-3]. The first lineage is associated with the tick species *Ixodes cookie* and *Ixodes marxi*. These tick species are not commonly associated with human tick bites. The second lineage which is associated with the Deer Tick or *Ixodes scapularis* (tick commonly linked with Lyme disease) is the major source of human infection [1-3].

Powassan virus is considered to be deadlier than Lyme disease because of its “rapid onset of neurosymptoms, and its brief transmission time (“it can be transmitted in as little as 15 minutes of a tick attachment”). Following the bite of a tick, symptoms of this deadly virus can appear from 1 week to 1 month” [1-4]. The Powassan virus can cause encephalitis and meningitis [1-3]. Ten percent of the Powassan virus cases have a fatal outcome [1-3]. What makes the diagnosis of Powassan so difficult is that it shares many of the symptoms that have been commonly associated with Lyme disease [1-3].

This virus is able to “cause fevers, seizures, focal neurological findings, neurological deficits (including loss of consciousness), hemiplegia, and neurological consequences, including mental status changes, visual deficits, hearing impairments, and chronic motor difficulties” [4]. Individuals who have pre-existing conditions have a greater susceptibility to this infection than those individuals who are normal [1-5]. The literature cites the fact that about one half those who survive a Powassan virus suffer from “permanent neurological symptoms” which include recurrent headaches, muscle wasting and memory difficulties [1-3]. There are also however, cases of Powassan virus in which victims do not manifest any symptoms [1-3]. Currently, there aren’t any vaccines or other therapeutic regimens as respectively concerns the prevention and treatment of Powassan virus infections [1-3].

Sadly, the Powassan virus is “one of the least studied” Flaviviruses [1-3]. Research is needed as relates to this deadly tick borne neuro-pathogenic virus and its many ramifications. There is also an urgent need of investigation to focus upon the early detection of the presence of Powassan virus. The most pressing need is for the development of an effective vaccine and other medications to respectively prevent and treat Powassan Virus Infections!!

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