Powassan virus encephalitis: an emerging arbovirus encephalitis.

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Virus is an important pathogen for human beings. The virus can infection the neurological system and can result in serious clinical problem. The viral encephalitis is an important problem in clinical neurology. There are many well-known virus encephalitis disorders such as Japanese encephalitis. Nevertheless, there are also many new viral diseases that can result in encephalitis. Many new emerging viral encephalitis diseases have been continuously reported in the past decade. Primarily, the mosquito borne viral encephalitis is widely known. The good examples are Japanese encephalitis which is transmitted by mosquito vector and highly endemic in tropical Asia. Nevertheless, the arbovirus can also be transmittable via non mosquito vectors. The tick borne arbovirus infection is the best example. Since tick is a small insect, similar to mosquito, the control of tick is difficult. There are several tick borne diseases that are present public health problems worldwide.

Of several diseases, the Powassan virus encephalitis is an important arbovirus disease that can cause encephalitis in human. The pathogen is the virus namely Powassan virus. The Powassan virus is a flavivirus. This virus was firstly identified at Powassan, Ontario in North America. The first human case is a boy who died of this virus infection. This Powassan virus infection is a tick borne disease and can be seen in America and Europe [1,2]. Hermance and Thangamani noted that "*In a process known as saliva-activated transmission, tick bioactive salivary molecules are thought to modulate the host environment, making it more favorable for the transmission and establishment of a pathogen* [3]."

According to a recent report, the disease might be missed as Lyme disease [4]. Focusing on clinical presentation, the disease has the classical nature of viral encephalitis. In a recent report form New England [5], "*The patients ranged in age from 21 to 82 years, were, for the most part, previously healthy, and presented with syndromes of fever, headache, and altered consciousness. Infections occurred from May to September and were often associated with known tick exposures*." Piantadosi et al. recommended "testing for POWV in patients who present with encephalitis in the spring to fall in New England [5]."

In a report from New York, case analysis showed that "*Ixodes scapularis* tick"is the important insect vector and most of the patients are the students living in the area of tick borne disease [6,7]. As noted by Ebel, the Powassan virus "*constitutes a genetically diverse group of virus genotypes, including Deer tick virus, that are maintained in distinct enzootic transmission cycles* [8]." From a molcecular epidemiology study, Pesko et al. noted that the Powassan virus was "extremely stable in enzootic foci [9]." Nevertheless, an in depth analysis from epidemiologicl surveillance of the cases also showed "widespread enzootic transmission [10]" in the epidemic area where the patients exist. Despite stable prevalence, the potential emergence of the Powassan virus infection becomes a big public health concern [11]. The Powassan virus encephalitis is an actual new interesting emerging arbovirus that the close surveillance for its possible mergence is recommended.

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