

## Death after quadrivalent human papillomavirus (qHPV) vaccination: Causal or coincidental?

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### Abstract:

Herein reported is the case of a 15-year-old female without a relevant medical history, who developed severe headaches, speech problems, dizziness, weakness, inability to walk, depressed consciousness, confusion, amnesia and vomiting, 14 days after receiving her first qHPV vaccine injection. After the second vaccine booster, her symptoms worsened and she expired 15 days later. Autopsy revealed cerebral oedema and cerebellar herniation indicative of a focally disrupted blood-brain barrier. There was no evidence of an active brain infection. Immunohistochemistry (IHC) examination of the brainstem, hippocampus and the cerebellum showed prominent infiltration of T-lymphocytes and macrophages in all brain areas examined. Notably, marked activation of the complement membrane attack complex (MAC) was detected in the cerebellar Purkinje cells, hippocampal neurons and portions of the brainstem. This pattern of MAC activation in the absence of an active brain infection indicates an abnormal triggering of the immune response in which the immune attack is directed towards self-tissue. Elevation of the pro-inflammatory IL-1 $\beta$  cytokine and intense micro- and astrogliosis were also evident in the patient's brain. Altogether these observations strongly indicate that the acute neuronal damage resulting in patient's death was due to an aberrant/excessive autoimmune and inflammatory response triggered by the vaccinations she received. Both the timing of the onset of symptoms as well as their nature, are consistent with previous case reports where causality between vaccination and the ensuing brain damage and/or death, was either demonstrated or strongly suspected. It thus appears that in some cases vaccination may be the triggering factor of fatal autoimmune/neurological events and physicians should be aware of this association.

### Biography

Lucija Tomljenovic holds a Ph.D in biochemistry and is currently a senior postdoctoral fellow at the University of British Columbia School of Medicine. Her current work focuses on neuroimmuno-toxic impacts of vaccine constituents, particularly aluminum adjuvants. She has published 7 papers in the last 12 months on the topic of vaccine safety in high-impact journals (*JAMA*, *Annals of Medicine*, *Journal of Internal Medicine*) and has recently presented her research as the invited speaker at the 8th International Congress on Autoimmunity in Granada. Tomljenovic serves as a peer reviewer for *Vaccine*, *Journal of Inorganic Biochemistry*, *Lupus* and *Surgical Neurology International*.