

Virus identified as a cause of paralyzing condition in children

April 22 2019, by Jeremy Olson



Credit: CC0 Public Domain

A virus appears to be the cause behind a rash of polioliike illnesses that struck Minnesota and other states last fall, causing paralyzing symptoms in several children, including one girl who lost all motor function and

remains hospitalized.

Researchers from Minnesota and the U.S. Centers for Disease Control and Prevention reported Thursday that they found Enterovirus-D68 in the [spinal fluid](#) of one of six children who suffered acute flaccid myelitis, or AFM.

The virus caused the condition in that child, and is presumed to be the cause in the other five, according to the researchers, who described their finding as a key piece in a puzzling national outbreak.

"(AFM) is incredibly scary for patients and families," said Dr. Heidi Moline, the lead author of the report and the University of Minnesota's chief pediatric resident. "The fact that we were able to definitively identify the EV-D68 virus as the cause of paralysis in one of our Minnesota patients does suggest this virus as a probable cause in our other recent AFM cases."

Moline said the researchers are working with [public health officials](#) to better understand the virus and how it affects children.

EV-D68 has been suspected for some time as a cause in the United States, in part because of surveillance since 2012 showing that the virus emerged every other fall in lockstep with spikes in AFM cases in 2014, 2016 and 2018.

The virus was previously found in the spinal fluid of a California child, but contamination of the fluid had tainted those results, Moline said.

"This is the first true confirmation that we've had," she added.

AFM is a neurological disorder that affects the spongy gray matter surrounding the spinal cord and damages nerves and their

communication with muscles. The first public reports of AFM in 2018 emerged in Minnesota, which ended the year with 10 of the nation's 228 confirmed cases.

The new research report was based on six children, ages 1 to 9, who were hospitalized between Sept. 19 and Oct. 1 after initial headaches or flu symptoms devolved into limb weakness or paralysis. The CDC released the findings in its weekly MMWR journal.

James Hill of Lakeville said he still can't believe how quickly his active 7-year-old son, Quinton, went from flulike symptoms to loss of motion in his upper left arm.

"It's hard looking at pictures, looking back, because he was the healthiest kid you ever met," Hill said.

Limb weakness was reported in the left arms of two children, the right arms of two others, and the left legs of two others. Five of the children improved through infusions of immunoglobulin to boost the immune system and physical therapy exercises.

One 7-year-old girl suffered rapid paralysis that has not improved. The report indicates that she has lost all voluntary limb movements but remains cognitively intact.

Research like this week's study, together with public awareness to AFM, should help clinicians if the pattern holds and cases surge again in the fall of 2022, but doctors still don't know for certain the best ways to treat it, even with the role of the virus being confirmed, said Dr. Anupama Kalaskar, a co-author of the report and an infectious disease specialist for Children's Hospitals and Clinics of Minnesota.

"Some patients received multiple treatments," she said, "so it's hard to

tease out which may have worked and which didn't work."

Hill's son regained some upper-arm movement over the winter through physical therapy at clinics and exercises at home designed to kick-start the nerves damaged by AFM.

Quinton underwent surgery in Los Angeles two weeks ago to transplant healthy nerves into his dormant upper left arm. The procedure was something of a disappointment, his father said, because the ideal nerves for transfer were found during the operation to be unusable. The Hills are hoping the procedure will still restore mobility after Quinton's cast is removed.

While Quinton has been resilient and upbeat, and even showed some signs of strength-building in his biceps this winter, he still can't push himself up with his left arm or raise it above his head.

"From our standpoint," his father said, "we felt strongly that we needed to be able to give him every single chance to be able to move."

Despite suspicions about EV-D68, doctors and clinicians had struggled to find any presence of it in the spinal fluid of afflicted children. The virus was found in their noses, but that doesn't prove that it played a role in a [neurological disorder](#), Moline said. One possibility is that the [virus](#) has already exited the spinal fluid before the paralyzing symptoms emerge, so tests simply occur too late.

The confirmation of EV-D68 does not rule out other viruses as potential causes. Nor does it absolve the role of environmental factors, which could explain why most children suffer common colds from these viruses but one in 1 million children contract AFM due to the exposure.

Moline said it does underscore the importance of basic public health

steps to reduce the spread of germs: "Our guidance at this time is really to cover coughs wash hands, and try to prevent the spread of respiratory diseases, especially in the fall."

Cases of AFM were confirmed last year in 41 states but have been found in regional clusters, presumably in states where EV-D68 and other viruses are prevalent. California and Colorado have both reported high numbers of cases since 2014.

A frustration for disease investigators is that the afflicted children seem to have little in common. In Minnesota, four of the children had no underlying health conditions, while one had cerebral palsy and suffered from seizures. Five of the six were girls. One had no prior cold symptoms, while the others had reported headaches, vomiting or diarrhea before their loss of movement.

"These [children](#) didn't go to the same day care they didn't live in the same street," Moline said. "Aside from living here in Minnesota, there wasn't anything that was a common factor."

©2019 Star Tribune (Minneapolis)

Distributed by Tribune Content Agency, LLC.

Citation: Virus identified as a cause of paralyzing condition in children (2019, April 22) retrieved 27 April 2024 from

<https://medicalxpress.com/news/2019-04-virus-paralyzing-condition-children.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--