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Canada (Anopheles include non-hare virus (SSHV), and La Crosse virus. Competent vectors borne pathogens Jamestown Canyon virus (JCV), snowshoe hare virus (SSHV), and JAMESTOWN CANYON (JCV) viruses, are mosquitoborne California serogroup (CSG) viruses, such as Jamestown Canyon and snowshoe hare viruses, are mosquitoborne pathogens that cause febrile illness and neurologic disease. Human exposures have been described across Canada, but infections are likely underdiagnosed. We describe a case of neuroinvasive illness in a New Brunswick, Canada, patient infected with a CSG virus.

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California Serogroup Virus Infection Associated with Encephalitis and Cognitive Decline, Canada, 2015

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titers for both viruses were equivalent or, at most, demonstrated only a 2-fold difference, the specific CSG virus associated with the patient’s illness could not be determined. Confirmatory PRNT titers for both viruses and the absence of IgM in the acute-phase serum suggest prior exposure to a CSG virus associated with the etiologic pathogen in this case. Secondary infections with orthobunyaviruses may result in a gradual or delayed rise in IgM, with neutralizing antibodies already detectable early after symptom onset, as documented in other cases involving CSG viruses (9).

Results for all other serologic tests were negative, leading to a modification of the diagnosis to confirmed CSG viral encephalitis. On September 9, the patient was transferred to a nursing home. In January 2016, further assessment revealed a lower mini–mental state examination score of 11/30. The patient, who was totally dependent for personal care and instrumental activities of daily living, was diagnosed with postencephalitic dementia.

Exposures to CSG viruses have been documented in New Brunswick (5; M.A. Drebot, unpub. data), and serologic results described in this report suggest that the patient may have been infected by JCV or SHSV on 2 different occasions. Human serorelevance of CSG virus, specifically JCV, has been noted to be high in the maritime provinces of Atlantic Canada. A serosurvey in Nova Scotia identified an overall CSG serorelevance of 21.2% (95% CI 16.1%–27.0%) (10). As such, there is need for increased awareness that these viruses are circulating during the mosquito season and may be associated with human disease.

Although most CSG infections result in mild illness, this case further highlights that these viruses can cause severe and debilitating neuroinvasive disease. Patients who seek medical care for febrile or encephalic clinical symptoms and who have possible or known exposures to mosquito vectors should be considered for CSG virus testing. JCV and SHSV infection should be considered in the differential diagnosis for such patients during the spring, summer, and fall.

Dr. Webster is an infectious diseases consultant and medical microbiologist at the Saint John Regional Hospital and an associate professor in the Faculty of Medicine at Dalhousie University in Saint John, New Brunswick, Canada. His primary research interests include zoonoses, harm reduction, tuberculosis, and glycosylation.

Table. Serologic test results for a patient with California serogroup virus infection associated with encephalitis and cognitive decline, Canada, 2015*.

<table>
<thead>
<tr>
<th>Virus</th>
<th>July 31</th>
<th>August 10</th>
<th>August 21</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Jamestown Canyon virus</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELISA IgM</td>
<td>Negative</td>
<td>Equivocal</td>
<td>Positive</td>
</tr>
<tr>
<td>PRNT titer</td>
<td>1:40</td>
<td>1:160</td>
<td>1:320</td>
</tr>
<tr>
<td><strong>Snowshoe hare virus</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELISA IgM</td>
<td>Negative</td>
<td>Equivocal</td>
<td>Positive</td>
</tr>
<tr>
<td>PRNT titer</td>
<td>1:20</td>
<td>1:320</td>
<td>1:320</td>
</tr>
</tbody>
</table>

*PRNT, plaque reduction neutralization test.

References

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