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Additional Cases of Orthopoxvirus Infection in Fairbanks-area Residents, 2021

Background

In July 2015 and August 2020, a species of Orthopoxvirus named *Alaskapox virus* was identified in two women residing in the Fairbanks area. Both women had similar symptoms: a small lesion on the shoulder or upper arm surrounded by erythema plus constitutional symptoms (e.g., fever or fatigue). Both patients were managed as outpatients and both lesions fully resolved.^{1,2}

Orthopoxviruses are double-stranded DNA viruses that occur in mammals. Most are zoonotic.³ Some occasionally infect humans. Alaskapox virus is not closely related to other known orthopoxviruses, although it causes similar lesions.⁴

In July and August 2021, two unrelated persons from the Fairbanks area presented with orthopox-like lesions to an urgent care clinic. The first patient was a young child with a lesion on the inside of her left elbow. About 4 days after the lesion first appeared, she had a mild subjective fever and axillary lymphadenopathy. These systemic symptoms lasted approximately 4 days. The lesion was substantially healed approximately 3 weeks after onset. The second patient was a middle-aged woman with a lesion on her upper right inner thigh. In addition to her lesion, she reported lymphadenopathy and joint pain beginning about 2 days after lesion onset. Approximately 3 weeks after symptom onset, the patient remained symptomatic but was improving. The lesions from both patients were deroofed and both tested positive on a generic PCR assay for orthopoxviruses. Viral genome sequencing yielded sequences very similar to previous Alaskapox viral sequences.

Methods

We interviewed the July patient's parent and the August patient to identify exposures including travel history, any recent illness or skin lesions in household members, and contact with animals. We focused on the period starting 4 weeks prior to symptom onset; the incubation period for Alaskapox virus infection is unknown, but that of other orthopoxvirus infections is often ≤ 2 weeks.⁵

Results

Neither patient traveled outside of the Fairbanks area in the 4 weeks prior to symptom onset and neither had household members or other contacts with skin lesions or compatible symptoms. For both patients, the only close contacts identified were family members.

Dogs and at least one cat were present in both households and the cats in both households hunted small mammals. None of the pets were observed to have had pox lesions or other characteristic symptoms. Neither patient had known direct contact with small mammals or small mammal feces.

While no specific source of infection was identified for either patient, both spent time outdoors in the Fairbanks area during the summer. The August patient spent considerable time performing yard work (e.g., cutting weeds) approximately one week before symptom onset.

Discussion

As more Alaskapox virus infections in humans are identified, some patterns are beginning to emerge. The identification of these two cases with no travel history and no epidemiologic links to other known cases provides further evidence that human cases occur following occasional spillover from an animal reservoir. The first two patients and one of the 2021

patients lived within about 10 km of Fairbanks, but one of the 2021 patients lived more than 25 km away. All four cases occurred in persons living in low-density housing in forested areas; small mammals are widespread in these areas. The 2020 case and both 2021 cases lived with cats. Cats serve as intermediate hosts for another orthopoxvirus, cowpox virus, and can transmit the virus to humans. The potential role of cats or other pets in the epidemiology of Alaskapox virus is unknown.

Small mammal trapping in October 2020 at the residence of the patient identified in August 2020 and other locations in the Fairbanks area yielded evidence of Alaskapox virus infection in small mammals, with the most extensive evidence in voles (data pending publication). The Alaska Section of Epidemiology is continuing to work with the University of Alaska Museum and CDC to investigate the role of small mammals in Alaskapox virus transmission.

Alaskapox virus infection may be more common than initially thought. However, available evidence continues to suggest that the public health impact of Alaskapox virus is limited. No evidence of human-to-human transmission has been documented and all four known infections were detected in the outpatient setting. Increased awareness among clinicians may lead to identification of additional cases and thereby inform a fuller understanding of the geographic distribution, risk factors, and spectrum of illness.

Recommendations

1. If a clinician suspects Alaskapox virus infection and no alternative diagnosis is identified, contact the Section of Epidemiology at 907-269-8000 for assistance. Of note, three of the patients sought care for what they thought was a spider or insect bite.
2. Clinicians should take photographs to document suspected poxvirus lesions. CDC poxvirus experts can provide consultations on suspected cases.
3. Persons with suspected orthopoxvirus lesions should be advised to keep the lesions dry and covered, to avoid touching the lesions, and to avoid sharing towels and other items that might have contact with the lesion. These items should be laundered separately.⁶
4. Advise patients to adhere to routine precautions to prevent disease transmission between humans and wildlife: a) do not handle wild animals, b) prevent wild animals from entering buildings, c) avoid areas with lots of animal droppings, and d) wash hands regularly.⁷

References

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