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Select Abstract:

Two cattle herdsmen infected with a novel species of Orthopoxvirus — Georgia (country), 2013

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Background: Cessation of routine smallpox vaccination has created opportunities for the emergence of orthopoxviruses previously suppressed by vaccine-derived immunity. With the exception of variola (agent of smallpox), Orthopoxvirus infections such as cowpox are often associated with animals. In July 2013, CDC tested diagnostic specimens from two herdsmen in Georgia (country) suspected of having cowpox after contact with ill cattle.

Methods: Sera were tested for Orthopoxvirus IgM and IgG antibodies. Nucleic acid was extracted from swabs of cutaneous lesions and screened for non-variola orthopoxviruses using quantitative real-time polymerase chain reaction (qPCR). Positive samples underwent additional qPCR reactions for identification of known Orthopoxvirus species.

Results: Orthopoxvirus IgM and IgG antibodies were detected. Nucleic acid screening of lesion samples for non-variola orthopoxviruses was positive, but subsequent reactions failed to assign the virus to a known Orthopoxvirus species. Phylogenetic analysis of a 500-base pair DNA sequence representing the Orthopoxvirus DNA-dependent RNA polymerase gene confirmed a novel virus. To determine disease transmissibility and identify additional human cases, an epidemiologic investigation was conducted in the region where the herdsmen lived. Both herdsmen denied history of smallpox vaccination. Fifty-five persons who had contact with the herdsmen or with cattle were interviewed. Five of nine (56%) interviewees born after cessation of routine smallpox vaccination in Georgia in 1980 had Orthopoxvirus IgG antibodies. An additional human case from a different region in Georgia was identified through testing of specimens originally submitted for anthrax diagnostics in 2010.

Conclusions: Orthopoxviruses are anticipated to emerge in the absence of routine smallpox vaccination and should be considered in persons who experience cutaneous lesions after animal contact. As highlighted here, global laboratory and epidemiologic capacity for orthopoxviruses are necessary.