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A Case of Poliomyelitis Associated with Infection of Wild Poliovirus in Qinghai Province, China, in October 1999

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In China, case of poliomyelitis associated with wild poliovirus infection had not been identified for more than 3 years after the detection of 4 cross-border cases from Myanmar in 1995 and 1996. However, a case of wild-virus poliomyelitis was detected in Qinghai province in northwestern China in October 1999 (1). This report outlines the case and the measures taken in reaction to it.

The patient was a 16-month-old boy of Sara ethnic ancestry, who resided in the autonomous Xunhua Sara ethnic minority county of Qinghai province. He had no history of immunization by poliovirus vaccine (OPV). In this county, approximately 60% of population are Muslims, including the Sara ethnic minority. Coverage for 3 doses of OPV was estimated to be 60% in this county according to surveys conducted after detection of this patient. The patient and his family members did not have a history of travelling to neighboring polio-endemic countries but had participated in a festival of the Sara people held 2 weeks before development of polio in the child.

The child developed flaccid paralysis in the right leg in the presence of fever on October 11, 1999. Type 1 polioviruses, which were soon identified as wild viruses, were isolated from the stools of this case and his contact. The analysis in terms of the sequences of 300 nucleotides in VP1 region demonstrated that the Qinghai strain was unrelated to viruses having circulated in China until 1994, but was related to a group of polioviruses in Myanmar, Bangladesh, and India (92% genomic identity) (Figure). The closest link was obtained between the Qinghai poliovirus and isolates in Madhya Pradesh of India isolated in 1998 by the sequence relationships in VP1/2A junction region (98%) (Olen Kew, personal communication).

In December 1999 and January 2000, Qinghai and 2 neighboring provinces, Gansu and Ningxia, conducted "mopping-up" immunization by OPV, followed by another session in March in 12 provinces including Tibet and Xinjiang. The immunization coverage of the campaign in January was estimated to be very high according to quick surveys conducted (1).

Epidemiological investigations were performed in the Xunhua Sara ethnic minority county and in neighboring areas inhabited by the Sara people. Active surveillance was also conducted in major medical facilities in Qinghai and 2 neighboring provinces, Gansu and Ningxia, for the discovery and following-up of under-reported AFP cases. No evidence of continued viral circulation was found. Wild polioviruses had probably circulated in a restricted manner in Sara and other Muslim ethnic minorities that frequently migrate between Qinghai and the Tibetan border area and are known to have lower immunization coverage than other ethnic populations. It is not known, however, when the wildtype poliovirus was imported into the community and to what extent the virus circulated before infecting the boy.

As mentioned, China had already detected 4 cases imported into the Yunnan border areas from Myanmar in 1995 and 1996. Outbreaks in Canada as well as in Malaysia were also due to importation of polioviruses, which subsequently circulated among people belonging to a special religious community (2,3). Thus, the cross-border importation of poliomyelitis, which becomes a serious threat to the goal of achieving polio eradication, may not be a rare event worldwide. We need to maintain good immunization programs and poliovirus surveillance until the interruption of poliovirus circulation has been achieved globally.

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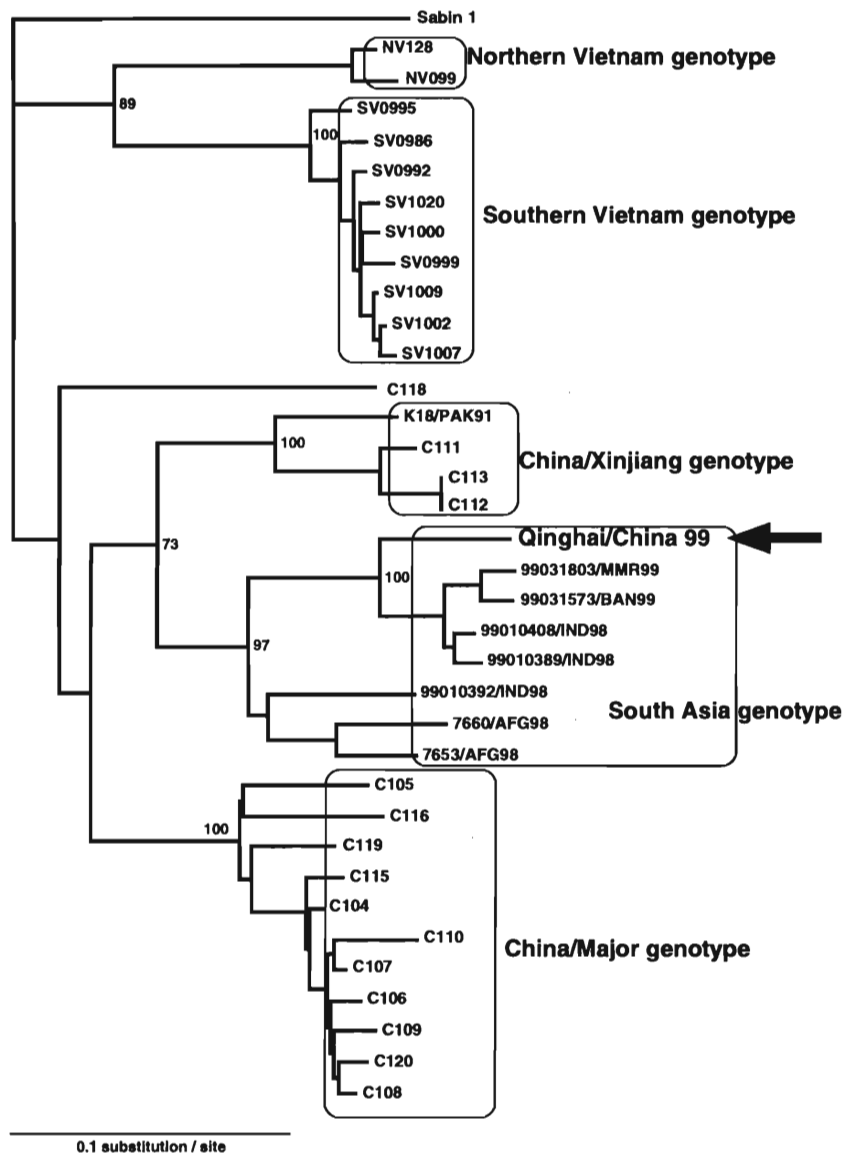


Figure. Phylogenetic trees of type 1 wild polioviruses isolated in Asia. The isolate from the Sala child, Qinghai/China 99, was more closely related to viruses found in the group of countries in southern Asia, Myanmar, Bangladesh and India, than those previously found in China.

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