Exposure to SIVmnd-2 in Southern Cameroon: Public Health Implications
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SUMMARY
In 2002, compelling evidence highlighted human exposure to a plethora of primate lentiviruses through hunting, handling of bushmeat and/or animals kept as pets in Cameroon. To determine SIV prevalence in pet animals, sera from 28 non-human primates (3 species), kept as household pets in southern Cameroon, was analyzed. Results showed there was no SIV infection among greater spot nosed monkeys (0/5) or chimpanzees (0/10). However, there was a prevalence rate of 23.1% (3/13) in mandrills. Phylogenetical analysis based on pol-integrase (IN) region and mitochondrial (mt) cytochrome b gene showed that the newly found SIVs from Mandrillus sphinx (SIVmndCM-202, SIVmndCM-211 and SIVmndCM-218) clustered significantly with SIVmnd-2. Questionnaire data were also collected to assess whether owners had experienced bites, scratches or exposure to blood and/or body fluid. Risk to human health from cross-species transmission of the newly identified SIVmnd-2 to infect humans remains unknown.

Chimpanzees (Pan troglodytes troglodytes) are recognized as the reservoir of simian immunodeficiency viruses (SIVcpzPtt) that have been introduced into humans at least three times, resulting in human immunodeficiency virus type 1 (HIV-1) groups M, O and N (a third HIV-1 lineage) [1] and [2]). Van Heuverswyn et al. reported the discovery of HIV-1 group-O like viruses in wild gorillas [3]. The cross-species transmission of SIVcpz is now thought to have occurred through humans' being exposed to the blood of chimpanzees infected with SIVcpz during hunting and butchering of non-human primates in Central Africa early in the 20th century [3], [4], [5] and [6]). Care for captive non-human primates has lead to the transmission of a range of infections, including simian foamy virus (SFV) and herpesvirus B (HVB), primatemalaria and tuberculosis [4]. Such behaviors can facilitate transmission of microorganisms from non-human primates to humans. Finally, a case of retrovirus transmission from mandrills to humans has already been documented. Simian T-cell lymphotrophic virus type 1 (STLV-1) from M. sphinx has been described as the simian counterpart of human T-cell lymphotrophic virus type 1 (HTLV-1) subtype D [7] and [8]). Moreover, a close molecular and phylogenetic relationship has been reported between STLV-1 subtype D from mandrills in Gabon and HTLV-1 strains obtained from Pygmies living in Cameroon and the Central African Republic and from a healthy non-Pygmy carrier in Gabon.

To assess the potential risk of zoonotic transmission of monkey-possessing SIVs to humans, we conducted a serological and genetical survey among monkeys that were kept as household pets in southern Cameroon.