Shedding light on rabies in opossums

Public health and veterinary professionals have commonly taken the stance that Virginia opossums (Didelphis virginiana), marsupials found throughout North America, cannot get rabies.\(^1,2\) This misconception could result in failure to conduct a risk assessment following encounters with opossums, with potentially fatal consequences. Two reasons for this misconception have been proposed: that the body temperature of opossums (34.4° to 36.1°C [94° to 97°F]) is too low to harbor the virus, and that opossums are unlikely to survive an attack from a rabid animal long enough to become infected.\(^3\)

Although more typical rabies reservoirs (eg, raccoons and bats) pose a higher risk, opossums can become infected with rabies virus and should be recognized as a possible source of exposure to animals and humans. The published literature on rabies in opossums is scarce. In a study\(^4\) published in 1966, two opossums were inoculated IM with rabies virus of red bat (Lasiurus borealis) origin, and no clinical signs or antibodies developed. In 1960, Beamer et al\(^5\) tested the susceptibility of opossums to rabies by directly inoculating, either intracerebrally or IM, 34 wild-trapped opossums with raccoon virus (fox, skunk, or standard challenge virus). Four (12%) animals developed CNS signs, and a transmissible agent that was subsequently lethal to mice was recovered from one. The authors concluded on the basis of their results that “the opossum is highly resistant to rabies,” and this conclusion has subsequently influenced our understanding of rabies in opossums.

Between 1984 and 2014, the Maryland Department of Health and Mental Hygiene documented 12 cases of rabies in opossums by means of direct fluorescent antibody testing. The rabies strain infecting these opossums was not determined but likely was the raccoon strain enzootic to the Mid-Atlantic States. To our knowledge, there is no published literature on the pathogenesis or clinical manifestations of raccoon rabies virus in opossums.

In one Maryland case, an opossum was observed banging its head against a wall, growling, and acting aggressively, and the public health report indicated that the animal was “acting rabid.” While it was easy to recognize abnormal behavior in this instance, in other cases, the opossums did not have such obvious signs of rabies. In one recent case, the animal reportedly “appeared ill.” Another rabid opossum was found dead, and one other was described as behaving normally. Given the present epidemiologic data, it seems clear that opossums do not present the greatest risk of rabies; however, it should be recognized that they do pose some risk. While the number of rabid opossums is likely low, they still serve as a potential source of rabies exposure. Review of an online veterinary forum\(^2\) revealed numerous descriptions of opossum encounters following which the animal was not tested for rabies because the persons involved believed opossums could not contract rabies. Given that rabies is virtually always fatal in people after the onset of clinical signs, dismissing an exposure to an opossum could result in the loss of human life. Such exposures should be appropriately assessed for risk, as is recommended for rabies reservoir species and other mammals.

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