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RESEARCH NOTES/CASE REPORTS

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Absence of Prenatal Infection of Bats with Rabies Virus

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Reports of prenatal infection by rabies virus usually follow experimental infection of the dam, whereby unnatural, large inocula may enter the circulatory system, creating a viremia, unknown in natural infections. Reports of natural transplacental transmission are rare and difficult to confirm.

The question as it concerns bats has received little attention. Sims et al. (1961, *J. Infect. Dis.* 112: 17–27) reported rabies virus in the brain of one of 23 fetuses extracted from as many female Mexican free-tailed bats (*Tadarida brasiliensis*) each of which had been inoculated via the chest muscles with rabies virus in a fluid volume equivalent to about one-tenth the bat's blood supply. Da Silva and de Souza (1968, *Pesqui. Agropecu. Bras.* 3: 365–368) reported rabies virus in a fetus and various other tissues (excluding brain, which may not have been tested) of a vampire bat (*Desmodus rotundus*); virus identification was by "Negri bodies" in brains of inoculated mice. Diagnosis by such inclusions is now known to be highly unreliable. Finally, several reviewers have cited as proof of prenatal rabies infection in bats the recovery of the virus from an aborted fetus from an experimentally-infected leaf-nosed bat (*Macrotus californicus*) (Constantine et al., 1968, *Am. J. Vet. Res.* 29: 181–189), whereas the viral source could have been experimentally-induced viremia or maternal saliva.

The subject has been investigated herein

by testing near-term fetuses of naturally-infected bats and by testing newborn and older suckling bats recovered from the floor under a multimillion aggregation of bats in a Texas cave. Rabies-infected pregnant bats were detected infrequently among bats submitted to health departments by the California public during 1975–1985 for rabies diagnosis by the fluorescent rabies antibody (FRA) test. In each instance the fetus was removed, using separate, sterile instruments and vessels to avoid cross-contamination, and the fetal brain was extracted and tested individually. In addition to being tested by the FRA method, brains of two sibling fetal red bats (*Lasiurus borealis*) and one fetal Mexican free-tailed bat were tested individually by intracerebral inoculation into litters of suckling mice. Virus laboratory techniques used were described by Johnson (1969, *In Diagnostic Procedures for Viral and Rickettsial Diseases*, Lennette and Schmidt (eds.), *Am. Pub. Health Assoc.*, pp. 321–353). Fallen bats were collected from the floor under a multimillion aggregation of bats at Frio Cave, Uvalde County, Texas, during the summer of 1974, and their brains were tested by FRA technique. Most of the fallen bats were sucklings; their ages were estimated by forearm length (Short, 1961, *Southwest. Nat.* 6: 156–163).

None of the 28 fetuses from 22 rabies-infected bats, infected in nature, was determined to be positive for rabies by either FRA or suckling mouse-inoculation tests (Table 1), indicating that prenatal infection had not occurred. The same expla-

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TABLE 1. Rabies-negative fetuses from rabies-positive bats found in California, 1975-1985.*

Species of bat	Number of pregnant bats	Number of fetuses
California brown bat (<i>Myotis californicus</i>)	1	1
Big brown bat (<i>Eptesicus fuscus</i>)	2	1 each
Red bat (<i>Lasiurus borealis</i>)	2	2 and 4
Hoary bat (<i>Lasiurus cinereus</i>)	2	2 each
Mexican free-tailed bat (<i>Tadarida brasiliensis</i>)	15	1 each
Totals	22	28

* Brains of all mature bats and all fetuses were examined by the fluorescent rabies antibody technique. In addition, brains from two fetal sibling red bats and one fetal Mexican free-tailed bat were inoculated into litters of suckling mice.

nation seems probable from the results of FRA tests on the brains of fallen, naturally-infected suckling bats from the cave floor. None of 284 suckling Mexican free-tailed bats estimated to be less than 5 days of age contained rabies viral antigen in brain smears, but 76 of 395 bats (19.2%) aged 5 to 11 days were positive. Eighty-four percent of the 76 infected sucklings were 7 to 11 days old, evidently having been infected at birth.

Prenatal infection by rabies virus would seem less significant since newborn bats may acquire infection at birth or shortly thereafter from infected mothers, other animals, or possibly by aerosols in populous roosts of Mexican free-tailed bats in caves (Constantine, 1967, Rabies Transmission by Air in Bat Caves, U.S. Pub. Health Serv. Publ. 1617, 51 pp.).

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Antibodies to Vesicular Stomatitis New Jersey Type Virus in a Population of White-Tailed Deer

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Although antibodies to vesicular stomatitis (VS) New Jersey (NJ) type previously had been reported in white-tailed deer (*Odocoileus virginianus*) (Karstad et al., 1956, J. Am. Vet. Med. Assoc. 129: 95-96; Jenney, 1967, Proc. U.S. Livestock Sanit. Assoc. 71: 371-385; Trainer and Hanson, 1969, Am. J. Epidemiol. 90: 354-358; Jenney et al., 1970, J. Wildl. Dis. 6: 488-493; Fletcher et al., 1985, J. Wildl. Dis. 21: 100-104), experimental VS infection has resulted only in a low transient

viremia quickly followed by high concentrations of virus neutralizing antibodies (Karstad and Hanson, 1957, Am. J. Vet. Res. 18: 162-166). While this suggests that white-tailed deer do not act as long-term VS reservoirs, the value of this species as an indicator to detect areas of VS activity has been established (Jenney et al., 1970, op. cit.).

Antibodies to VS were first recorded on Ossabaw Island, Georgia, from two white-tailed deer collected in 1965 (Jenney et al., 1970, op. cit.). Since that time, VS antibodies also have been reported in wild swine (*Sus scrofa*), cattle (*Bos taurus*), and

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