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EXPERIMENTAL INFECTION OF DOMESTIC SHEEP AND MULE DEER WITH *Elaeophora schneideri* WEHR AND DIKMANS, 1935*

Last year we reported that species of *Hybomitra* and *Tabanus* (Diptera: Tabanidae) captured in the Gila Forest, New Mexico, were infected with a filarioid larva having morphological features similar to adult *Elaeophora schneideri* (Hibler, Adcock, Davis and Abdelbaki, 1969. Bull. Wildlife Disease Assoc. 5: 27-30). This year, a major objective was to determine if this larva is that of *E. schneideri*. Confirmation necessitated inoculation of the larva into a suitable definitive host, and recovery of adult *E. schneideri*.

Domestic sheep and mule deer were used as the definitive hosts for this experiment. Sheep were purchased from a farm flock outside the enzootic area. The deer were captive animals originating in areas of New Mexico known to be free of *E. schneideri*. All animals were checked for patent infection by the skin maceration technique (Anderson, 1962.

TABLE 1. *Results of Experimental Infection of Domestic Sheep and Mule Deer with* E. schneideri.

Animal	Larvae Given	Route of Inoculation	Parasites Recovered	% Recovery	Site of Recovery[1] Left	Right	Other
Sheep No.							
1. Yearling	70	Intradermal and facial veins	15	21	8	7	0
2. Yearling	125	Left jugular vein	40	32	19	18	3[3]
3. Lamb	138	Left common carotid artery	36	26	18	18	0
4. Yearling	122	Intradermal and facial veins	42	34	16	26	0
5. Mature	120	Left common carotid artery	None[2]	—	—	—	—
Deer No.							
1. Adult	150	Intradermal and facial veins	12	8	5	7	0
2. Adult	270	Intradermal and facial veins	12	4	12	0	0
5. Adult	unknown	Natural exposure	87	unknown	25	20	42[4]

[1] Common carotid and internal maxillary arteries.

[2] Parasitic remnants found in leptomeninges.

[3] Two were in the splenic artery, one in a mesenteric artery.

[4] The majority were found in the left ventricle (postmortem migration), but some were found in both brachials, right lingual, mesenteric, and coronary arteries. One was found in the right ventricle.

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Trans. Roy. Can. Inst. 34: 57-92; Hibler, 1965. Bull. Wildlife Disease Assoc. 1: 44-48). The experiment was conducted between June 20 and July 4, 1969.

Third stage larvae dissected from the heads and mouthparts of naturally infected horseflies were counted and pooled in sterile physiological saline. Within 30 minutes after collection, they were drawn into a tuberculin syringe equipped with a 29 ga. needle and inoculated into sheep and deer by the intradermal, intravenous, or intra-arterial route. Intradermal inoculations were confined to the forehead and facial region. Some animals received larvae by both intradermal and intravenous routes. Five sheep were inoculated and three were kept as controls. Two deer were inoculated and two kept as controls.

An additional deer (5) was exposed to naturally infected horseflies in an area where they were known to be heavily infected with filarioid larvae. A sample of horseflies taken on the day of exposure revealed that 13 of 30 (43%) were infected with 257 third stage larvae. The deer was exposed for 1.5 hours, during which time approximately 75 horseflies fed on the forehead, face and legs, with the majority preferring the facial region.

The animals were examined postmortem from late August to mid-September. Results are summarized in Table 1. Adult *E. schneideri* were recovered from the arteries of sheep 1 through 4. Sheep 5 died unexpectedly, one month following experimental infection; cerebral lesions found at necropsy were indistinguishable from those seen in fatal cases of elaeophorosis in elk calves (Adcock and Hibler, 1969. Path. Vet. 6: 185-213). Although no live *E. schneideri* were recovered from this animal, parasite remnants, surrounded by granulomatous reaction, were found in the leptomeninges. Control sheep were not infected with *E. schneideri*.

Adult *E. schneideri* were recovered from the arteries of the two experimentally infected deer and the naturally exposed deer. Control deer were not infected.

Experimental completion of the biological cycle of *E. schneideri* has confirmed that species of *Hybomitra* and *Tabanus* are natural intermediate hosts for this nematode. Clinical and pathological studies on these animals will be reported later.

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