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ELAEOPHOROSIS IN SIKA DEER IN TEXAS

R. M. ROBINSON,^[1] L. P. JONES,^[2] T. J. GALVIN^[4] and G. M. HARWELL^[3]

Abstract: *Elaeophora schneideri* was found in sika deer (*Cervus nippon*) from several areas in Texas. The parasite produced unilateral tumorous masses on the head and/or feet. This is the first report of *E. schneideri* in Texas.

INTRODUCTION

Elaeophora schneideri has been reported in western North America from British Columbia to Arizona;³ however, the eastern distribution of this parasite is not known. Since clinical signs rarely occur in species of the genus *Odocoileus*, the vascular network seldom is examined, thus distribution of the nematode likely is greater than suggested in abnormal hosts. *E. schneideri* was discovered in four sika deer (*Cervus nippon*) from several areas in Texas. This is the first report of the parasite in this state; this report covers the distribution of infected sika deer and the clinical manifestations of elaeophorosis in this species.

MATERIALS AND METHODS

Tissues were examined from sika deer obtained from Webb, Kerr, Robertson and Palo Pinto counties. Exotic game animals are enclosed in large pastures by net wire fencing 2 to 2.7 m high. Although many have escaped, the fences generally are effective. Exotic game animals are quite popular and much trading and movement of these animals occurs between ranches within the state.

Three deer with lesions were sent to Texas A&M University for examination. One was photographed in the field. Representative tissue samples were submitted for microscopic examination. One of the three deer was maintained on the Veterinary Research Farm for four months before it was killed and examined at necropsy. The arterial system of two specimens was carefully dissected in the regions of the gross lesions and the involved vessels identified. Tissues from the lesion in all animals, and of all organs of the two previously mentioned specimens were preserved in 10% buffered formalin, embedded in paraffin, sectioned at 6 μ m and stained with hematoxylin and eosin for light microscopic examination.

RESULTS

All four animals had a unilateral lesion involving the temporal, frontal and orbital area. The lesion was a tumorous mass involving the orbital region, often completely obscuring the eye and, in one instance, the ear. The corneas were opaque when the eyes were involved. Varying degrees of scarification and suppuration were

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seen (Figs. 1, 2). The common carotid arteries contained 2 to 4 mature *E. schneideri* at the bifurcation forming the external maxillary and external carotid

arteries. In this area, small mamillary projections were present in the endothelium. One animal had obvious lesions on the hind leg (Fig. 3) and a



FIGURE 1. Regressing facial lesion in a mature sika deer.

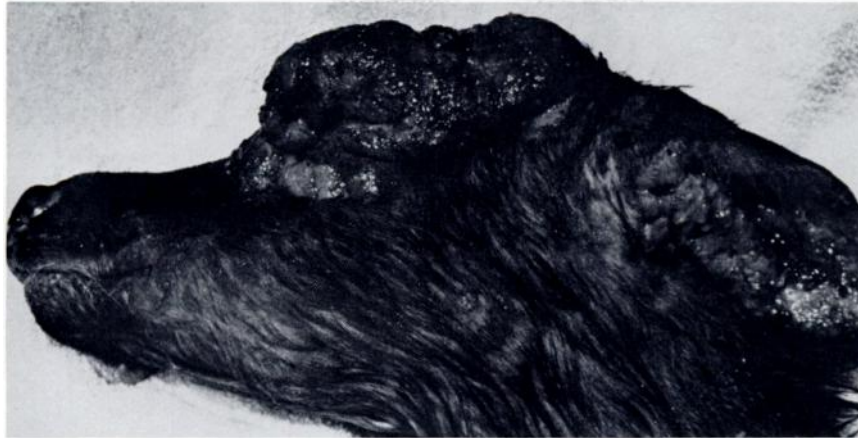


FIGURE 2. Active parasitic lesions involving the face and ear of a sika deer.

single adult was found in the femoral artery. These lesions had a thickened epidermis with loss of hair and a dry scaly surface.

Microscopic lesions in the regions infected with microfilariae were characterized by a severe pyogranulomatous reaction. Foreign body giant cells were abundant around degenerating microfilariae and eosinophils had infiltrated the lesions. The epidermis was acanthotic and a severe pyodermatitis was associated with ulcerated areas. Proliferation of fibrous connective tissue, with scattered nodules of lymphocytes and macrophages and variable numbers of eosinophils at their periphery also was present. These lesions contained relatively few microfilariae.

Severe vacuolation of the arterial adventitia accompanied the infiltration of eosinophils around blood vessels. The deer with both facial and leg lesions had foci of eosinophils surrounding microfilariae in the submucosa of the intestine, suggesting that adult nematodes also were in the splanchic vascular tree. All lesions observed were more severe than those reported in elk,¹ except for the site of

adult nematodes, where intimal proliferation was present, but which did not occlude the vascular lumen, as seen in elk and sheep.

The distribution of lesions was similar to those reported in sheep,⁴ however, the lesions were much more severe. The foreign body reaction was more intense and proliferated much more excessively. No lesions of the oral or nasal cavities were observed in the animals examined.

One animal was observed for a period of four months. Medication was applied to the facial lesion to prevent excessive secondary infection. The lesion exacerbated on four occasions; this was accompanied by loss of the epithelial surface and exposure of the dermis. Between the periods of exacerbation, the lesion regressed and the surface healed, leaving a glossy, black, hairless epithelium covering the site. Species of *Stomoxys* and *Hybomitra* were attracted to the site and preferentially fed upon the glossy distended surface of the lesion. The flies feeding in this area were captured and blood films were made of the ingested blood and fluids; no microfilariae were found.



FIGURE 3. *Elaeophora schneideri* lesions on the hind leg of a sika buck: Note the normal hind leg on the opposite side.

DISCUSSION

The infected sika deer were of interest because the owners had found "cancer" in their deer herds. This type of lesion is common on sika deer in Texas and is reported rather frequently by ranchers. Because the infection is unsightly, animals normally are removed from the herd.

It is fascinating to speculate on the appearance of this parasite in sika deer in an area where the disease is not known in sheep (which are abundant); moreover, the disease has not been reported in elk within the state, although elk are infected in other areas.² The sika deer obviously is an aberrant host, and one must suspect

white-tailed deer (*Odocoileus virginianus*) are reservoir hosts because mule deer (*Odocoileus hemionus*) do not occur in areas where infected sika deer were found. The disease probably was not imported into the state as many generations of sika deer have been produced in most of the areas concerned, particularly in the Edwards Plateau region. Clinical disease has been reported in white-tailed deer in the southeastern United States,⁵ but not in Texas. The wide distribution of elaeophorosis in sika deer suggests that infection in the reservoir host (presumably the white-tailed deer) is widespread; therefore, elaeophorosis must be considered in the management of sika deer in Texas.

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