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Authors: CARPENTER, JAMES W., FREENY, J. CLAY, and PATTON, CLARK S.

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OCCURRENCE OF *Demodex* OWEN 1843 ON A WHITE-TAILED DEER FROM OKLAHOMA

JAMES W. CARPENTER, Oklahoma Cooperative Wildlife Research Unit, Oklahoma State University, Stillwater, Oklahoma, 74074.

J. CLAY FREENY, Department of Veterinary Pathology, College of Veterinary Medicine, Oklahoma State University, Stillwater, Oklahoma, 74074.

CLARK S. PATTON, Department of Veterinary Parasitology and Public Health, College of Veterinary Medicine, Oklahoma State University, Stillwater, Oklahoma, 74074.

Abstract: The occurrence of *Demodex* in a new host, the white-tailed deer *(Odocoileus virginianus)*, is described. The mite infestation produced a diffuse alopecia on the posterior half of the body.

INTRODUCTION

In a review of the recorded parasites from the white-tailed deer *(Odocoileus virginianus)* in the United States and Canada, Walker and Becklund[5] list the mite genera *Otodectes*, *Odontarcarus*, and *Trombicula*. *Psoroptes* was later isolated from a white-tailed deer by Strickland *et al.*[4] However, no record of *Demodex* occurring on white-tailed deer was found in the literature. This paper is the first report of *Demodex* sp. on a white-tailed deer and describes a clinical case of demodectic mange on this host in Oklahoma.

Demodex spp. are cigar-shaped mites which typically inhabit hair follicles, sabeceous glands, and the epidermis of mammals where they may produce characteristic skin lesions. The type of lesion may differ between host species depending on the reaction of the host to the presence of the mites and the presence of a concurrent bacterial infection.[2] The pathology of demodectic mange in domestic animals is described by Jubb and Kennedy.[1] A squamous form of demodectic mange occurs commonly in dogs and is characterized by thickened, scaly skin, and circumscribed alopecia. Bacterial infection following a more generalized mite infestation may result in the pustular form of the disease; the skin becomes reddened, moist, and contains pustules. Demodectic mange is occasionally encountered in cattle where it most often appears as small intracutaneous nodules.

CASE HISTORY

On January 21, 1971, the Oklahoma Department of Wildlife Conservation submitted a female white-tailed deer from Spavinaw Hills State Game Refuge, Eucha, Oklahoma, to the College of Veterinary Medicine, Oklahoma State University, for postmortem examination. In an attempt by wildlife personnel to examine a large area of alopecia, the deer had died while being captured with succinylcholine chloride.

MATERIALS AND METHODS

A necropsy was performed and selected tissues were preserved in 10% buffered formalin. For histologic examination, epithelial tissues were embedded in paraffin, sectioned at 7μ, and stained with Ehrlich's hematoxylin and eosin. For whole body mounts, parasites were scraped from the fixed skin, placed in 5% KOH for 18 hours at room temperature, and mounted in Hoyer's medium.

POSTMORTEM FINDINGS

A bilaterally symmetrical, diffuse alopecia was present over most of the posterior half of the body; only a few short, widely dispersed hairs were present. The affected area extended from just anterior to the last rib to the dorsal and lateral abdomen, the rump, the base of the tail, and the lateral and posterior thighs. The skin was not abnormally thickened; however, a small amount of loose keratinized epithelium was present. The carcass lacked body fat. Lesions were not found in other organ systems.

Numerous *Demodex* adults (Fig. 1), larvae, nymphs, and eggs were recovered from skin scrapings. Histologic examination of affected skin revealed a large number of parasites in the hair follicles and sebaceous glands (Figs. 2 and 3). The follicles were distended, devoid of hair, and some contained neutrophils (Fig. 3). The dermis contained congested capillaries, a diffuse, mild infiltrate of lymphocytes interspersed with eosinophils and neutrophils, an abundance of dense collagen, and aggregates of melanocytes.

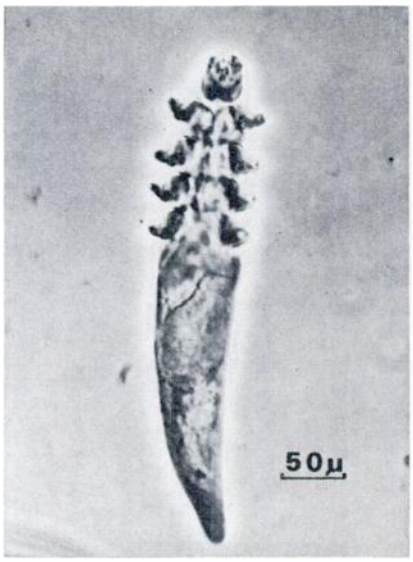

FIG. 1 **Demodex** from formalin-fixed deer skin and mounted in Hoyer's medium. Phase-contrast, x 64.

DISCUSSION

Numerous demodectic mites within distended hair follicles and sebaceous glands, associated with dermatitis, explains the hair loss observed in this doe. The histologic and gross appearance of the mange occurring in this deer is similar to the desquamative type described in the dog.[1]

Demodectic mange probably cannot be incriminated for the poor physical condition of this doe. Although a serious or intractable condition may result from generalized demodectic mange, in general, demodectic mange is thought to be rather benign with regard to its effect on the host's general health.[1,3] The lack of body fat observed in this animal is frequently seen in deer examined during this time of year.

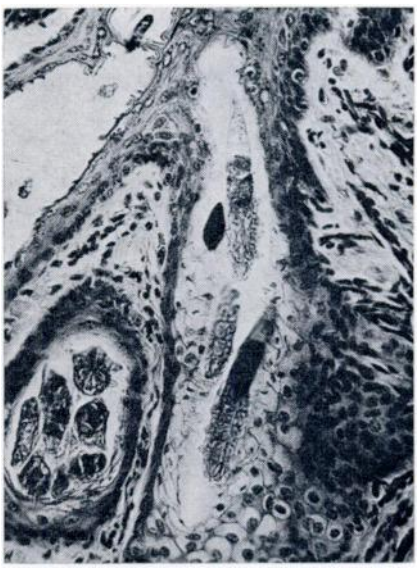

FIG. 2 Photomicrograph of deer skin with a longitudinal section of a sebaceous gland and its duct. Adjacent to a dark, spindle-shaped egg is a demodectic mite at the neck of the gland; two other mites are within the gland. At lower left are cross sections of several mites in an adjacent sebaceous gland duct. H & E, x 64.

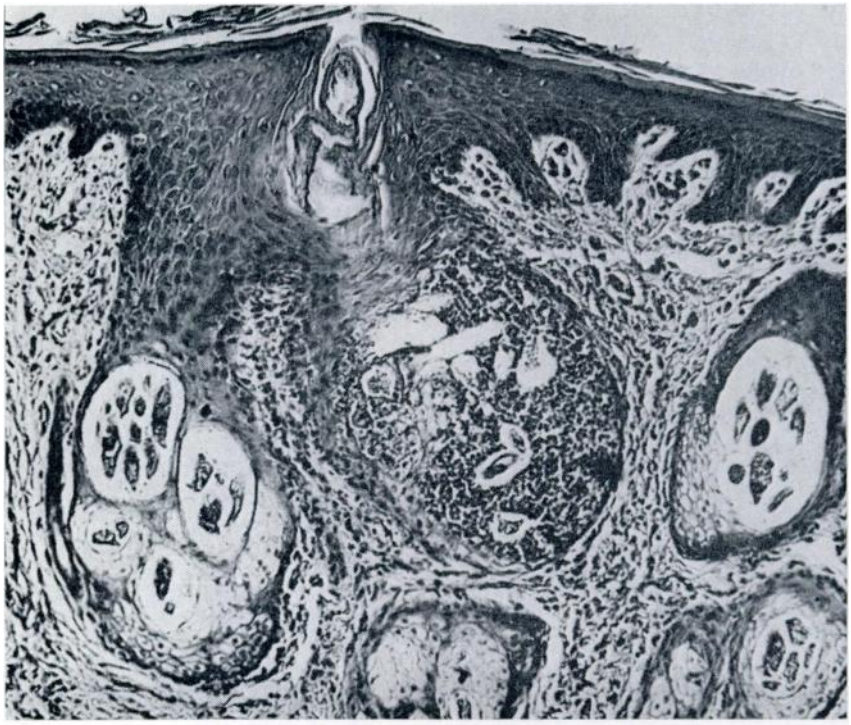

FIG. 3 Photomicrograph of deer skin containing many demodectic mites within distended sebaceous glands and ducts. At right of center is a pustule, probably the remains of a sebaceous gland, containing both mites and neutrophils. The dermis contains a moderate, diffuse, cellular infiltrate. H & E, x 25.2.

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