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PRESUMPTIVE PARATUBERCULOSIS IN A VIRGINIA WHITE-TAILED DEER

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Abstract: Paratuberculosis (Johne's disease) is described in a 5-month-old white-tailed deer (*Odocoileus virginianus*). Diagnosis was based on clinical signs and pathology.

INTRODUCTION

Paratuberculosis (Johne's disease), caused by *Mycobacterium paratuberculosis*, is a ubiquitous disease of domestic and wild ruminants. Although deer are frequently mentioned in the literature on paratuberculosis, few reports have been published. In 1966, Hillermark¹ reviewed previously published cases of paratuberculosis in various species of deer and described a disease resembling paratuberculosis in 5 of 1,302 free-living roe deer (*Capreolus capreolus* L.) examined in Sweden. Paratuberculosis in a moose was reported in 1967, by Soltys *et al.*² No reports of paratuberculosis in white-tailed deer (*Odocoileus virginianus*) were found in the literature.

Information on the disease in deer is essential because deer have a wide distribution, are more or less abundant over their range, and in some instances share range with domestic livestock.

CASE REPORT

A nearby industrial complex (Radford Army Ammunition Plant) in southwestern Virginia enclosed 9.7 km² with chain-link fence and stocked the area with white-tailed deer. Some deer jump the fence, but most remain within the enclosure, or after a short time outside re-enter

in the same manner. The subject in this case was a 5-month-old female fawn, one of a group of 12 deer each 2-3 days old when removed from this enclosure by the Department of Fisheries and Wildlife at our university.

The fawn was paired with another fawn and was placed on an experimental diet (low energy-high protein) at 3½ months of age (September 15, 1973), but was maintained on the diet for less than a week because she refused to eat the unpalatable mixture.

Moderate anorexia persisted and on October 10 (approximately 3 weeks before death) she appeared clinically ill and was isolated. Inappetence, diarrhea and emaciation were the clinical signs recorded.

She was treated with an astringent and protective* for noninfectious diarrhea for 3 days (October 14-16) without any noticeable improvement.

The fawn's condition gradually deteriorated and she died on November 2, 1973. The other animal remained healthy.

The gross changes observed at necropsy were: emaciation, excessive watery contents in the entire gastro-intestinal tract; slight thickening of the mucosa in the posterior ileum and colon; and enlargement of the posterior mesenteric lymph nodes.

* Kramechu, Norden Laboratories, Lincoln, Nebraska.

Histologic lesions were confined to the ileum and the posterior mesenteric lymph nodes. The lamina propria of the ileum was densely infiltrated by epithelioid cells with a profuse, foamy cytoplasm; acid-fast bacilli were packed within the cytoplasm (Fig. 1). The posterior mesen-

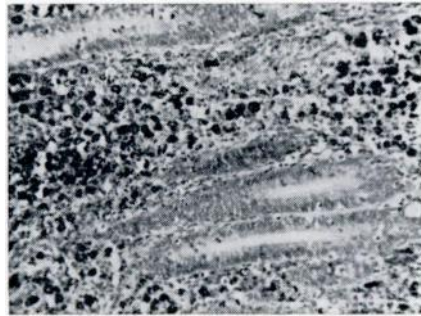


FIGURE 1. Large macrophages laden with acid-fast bacilli in the lamina propria of the ileum. Ziehl-Neelson x120.

teric lymph nodes contained numerous foci of epithelioid cells and Langhans' giant cells. Within many foci acid-fast bacilli were demonstrated. Hydropic degeneration and generalized interstitial hemorrhages were present in the cortex of the adrenal glands.

Infection with *M. paratuberculosis* usually occurs in young animals and is followed by a protracted period of incubation prior to the appearance of clinical disease. In this fawn the early appearance of clinical disease could have been predisposed by the stress of inadequate nutrition. The intestines did not show the marked thickening and transverse folds, or rugae, usually associated with Johne's disease in cattle;² however, the history of diarrhea, emaciation and unthriftiness indicated a chronic intestinal disorder. Although the organism was not cultured, the enlarged mesenteric lymph nodes and histopathologic features, when considered with the clinical history, were indicative of paratuberculosis.

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