LEAD POISONING IN A BLACK DUCK

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Source: Bulletin of the Wildlife Disease Association, 3(1) : 37

Published By: Wildlife Disease Association

URL: https://doi.org/10.7589/0090-3558-3.1.37

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The occurrence of acid-fast intranuclear inclusion bodies in the cells of the proximal convoluted tubules of mallards experimentally fed lead shot was described recently by Locke *et al.* (Bull. Wildlife Dis. Assoc. 2: 127-131, 1966). The present note documents the occurrence of acid-fast intranuclear inclusion bodies in the kidneys of a black duck (*Anas rubripes*) and is the first report of these diagnostic inclusion bodies in a field case of lead poisoning in a duck.

Case Report

On March 25, 1966, a dead adult male black duck was collected at Rehoboth Bay, Delaware, and submitted to the Patuxent Wildlife Research Center Laboratory for diagnostic studies.

The bird was extremely emaciated, with thin shrunken pectorals, and the feathers around the vent had been soiled with a greenish diarrhea. Internally, there was no fat and the spleen and liver were shrunken. The liver weighed 13.5 grams and was light brown in color. Two well-worn shot were found in the gizzard. The gall bladder was only slightly enlarged.

Pieces of the kidney were fixed in neutral buffered 4% formaldehyde, and were sectioned and stained with the Ziehl-Neelson acid-fast technique. Brain and liver were saved for chemical analysis. Lead determinations were subsequently run on a Perkin-Elmer atomic absorption spectrophotometer, Model 300. The amount of lead in the liver was 25 ppm (wet weight); in the brain, 5 ppm.

Microscopical examination showed that the kidney had undergone a fair amount of autolysis. However, typical acid-fast intranuclear inclusion bodies, similar in staining and morphology to those recently described by Locke *et al.* (ibid), were found in the cells of the proximal convoluted tubules. In 50 consecutive oil immersion (900X) fields examined, a total of 17 nuclei containing acid-fast intranuclear inclusion bodies was found. Affected nuclei were shrunken and stained a very deep blue, but in many the scarlet inclusion bodies could be readily identified. In tissues undergoing autolysis, the inclusion bodies stain progressively lighter. No inclusion bodies could be demonstrated in areas where marked autolysis had occurred.

The level of lead recovered from the liver is within the range of values suggestive of lead poisoning in mallards. In the previously cited work of Locke *et al.*, mallards fed 3 lead shot on a mixed grain and duck pellet diet have developed typical signs of lead poisoning, and one of these birds had only 16 ppm lead (wet weight) in the liver. Mallards maintained on a cracked corn diet and dying after being fed 8 lead shot had lead livels in the liver ranging from 27 ppm - 80 ppm (wet weight). The livers of control mallards ranged from 0.5 - 2.0 ppm lead. The significance of the brain level in the black duck, 5 ppm, is not yet understood.

Acid-fast inclusion bodies can be demonstrated in the kidneys of birds dying under field conditions from lead poisoning provided the tissues are obtained prior to complete destruction by autolysis.

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Laurel, Maryland, 4 November, 1966