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Source: Bulletin of the Wildlife Disease Association, 4(4) : 132

Published By: Wildlife Disease Association

URL: <https://doi.org/10.7589/0090-3558-4.4.132>

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Plasmodium elongatum FROM A PENGUIN

Plasmodium has been reported from penguins in zoological collections on several occasions (Rodhain, 1953, Bull. Roy. Soc. Anvers 1: 24 pp.; Griner and Sheridan, 1967, Am. J. Vet. Clin. Path. 1: 7-17; Huff and Shiroishi, 1962, J. Parasitol. 48: 495). Huff and Shiroishi diagnosed *P. elongatum* from Humboldt penguins (*Spheniscus humboldti*) captive at the National Zoological Park in Washington, D.C., and were able to infect canaries but not turkeys, chicks, ducklings, or pigeons.

Malaria was diagnosed in penguins during a die-off at the Baltimore Zoo. Through the kind cooperation of Dr. William Sladen, of the Johns Hopkins University School of Hygiene, blood, kidney and spleen were obtained at autopsy on September 23, 1967, from an African penguin (*Spheniscus demersus*). These were emulsified and mixed with heparin and, after two days storage at 4° C, were subinoculated, intravenously and intraperitoneally, into 13-day-old Pekin ducks. A low grade infection with *P. elongatum* developed and was maintained through serial passages in ducklings. Identification was based on morphology of the characteristic gametocytes. Peak of infection was reached within 3 - 12 days at a level up to 110 parasites per 10,000 erythrocytes. Canaries were also infected.

On October 5, after the outbreak had apparently run its course in the birds, blood was drawn from 10 of the surviving penguins and inoculated into canaries and ducklings. No further cases of *Plasmodium* were uncovered by this procedure.

This is the first record of *P. elongatum* from the African penguin and the second record from any penguin. It is assumed that the infections in the penguins resulted from mosquito transmission from infected wild resident birds in the park area adjoining the penguin exhibit at the Zoo. *P. elongatum* is a common parasite of North American passeriform birds.

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May 22, 1968.

ABSTRACT

SHERWOOD, B. F., D. T. ROWLANDS, D. B. HACKEL, and J. C. LeMAY. 1968. Bacterial Endocarditis, Glomerulonephritis, and Amyloidosis in the Opossum (*Didelphis virginiana*)

Amer. Jour. Path. 53 (1): 115-126.

Thirty-three opossums dying in captivity were studied in detail. The most impressive pathologic lesions identified in these animals were myocarditis and bacterial endocarditis. There was, in addition, evidence of inflammation in kidneys and lungs. Proliferative glomerulonephritis, and amyloidosis of liver and spleen were regularly identified in the animals included in this group.

Two control groups consisting of 10 opossums each were also examined. One group consisted of opossums sacrificed while in captivity and the second control group was made up of opossums sacrificed immediately after capture. Since endocarditis, amyloidosis, and glomerulonephritis were not found in opossums sacrificed immediately after capture, it is apparent that these disorders develop during captivity.

Authors' summary