Journal of Wildlife Diseases, 25(1), 1989, pp. 122–123

Isolation of *Aeromonas hydrophila* from a Captive Caracal Lynx (*Felis caracal*)

R. A. Ocholi and T. H. I. Spencer, Diagnostic Department, National Veterinary Research Institute, Vom, Nigeria

ABSTRACT: *Aeromonas hydrophila* was isolated from the internal organs of a captive caracal lynx (*Felis caracal*) which died of acute septicemia. Grossly, patchy areas of focal necrosis were found in the lungs, liver and kidney; there was ulceraction in the stomach and intestines. Microscopically, lesions contained cellular debris, neutrophils, lymphocytes and gram-negative bacilli. This is the first report of isolation of *Aeromonas hydrophila* from a captive wild animal in Nigeria.

Key words: *Aeromonas hydrophila*, caracal lynx, *Felis caracal*, septicemia, pathology, case history.

Aeromonas hydrophila is commonly isolated from fresh water (Schubert, 1971). It is recognized as a pathogen in many fresh water fish, amphibians and reptiles (Bullock, 1964; Marcus, 1971; Esch et al., 1976). Clinical disease caused by this organism has been associated with stress and environmental temperature (Gorden et al., 1979). There are no reports of its involvement as a disease agent of free-living or captive wild animals in Nigeria. The present report describes the isolation of *Aeromonas hydrophila* from a caracal lynx (*Felis caracal*) held in captivity in the Jos Zoo (Nigeria). The animal, an adult female of unknown age, was captured from the wild and presented to the Zoo by a hunter. It was the only lynx in the zoo and had been maintained in captivity since September 1985. The animal, like other felines in the zoo was fed on beef provided from an abbattoir. On 3 July 1987, the animal was found to be anorexic, weak, depressed and with profuse diarrhaea. Therapy with Bisol-M® (Pfizer Inc., New York, New York 10017, USA) at 5 mg/kg administered intramuscularly was initiated and the animal appeared to improve, but subsequently it was found dead on 2 August 1987. Samples of the lung, liver, kidney, small intestine and heart blood were aseptically collected at necropsy for bacterial culture which was performed as described by (Carter, 1975). Tissue samples of the lung, liver, kidney and intestines were fixed in 10% buffered formalin and paraffin embedded sections cut at 6 μm were stained with hematoxylin and eosin. Fecal samples were examined for parasites by the modified Sheather's sugar flotation technique (Sloss and Kemp, 1985).

At necropsy, the carcass was emaciated. Gross lesions were suggestive of acute septicemin. The trachea, lungs and liver were acutely congested. There was patchy areas of focal necrosis in the lung, liver and kidney. Petechial hemorrhages were found in the liver, epicardium, endocardium and kidneys. There were ulcerations in the stomach and intestines. Microscopically, necrotic foci were found in the lungs, liver and kidneys. In these organs, necrotic foci consisted of necrotic debris mixed with neutrophils and lymphocytes and gram-negative bacilli. The portal vessels of the liver contained septic thrombi and hemorrhagic tracts were seen between hepatic chords and between renal tubules of the kidney. Erosion of the villi and hemorrhages in the submucosa were seen in the intestines.

The organism was isolated on blood and MacConkey agar (Oxoid Ltd., Hampshire RG24 OPW, United Kingdom) in pure culture and identified as belonging to the genus *Aeromonas* based on oxidase and catalase positive reactions and the presence of motility. Further identification of species was based on the following biochemical reactions: fermentation of glucose, maltose, sucrose, manintol, trehalose, arabinose, sorbitol, and salicin; nitrates were reduced to nitrites; indole was formed; esculin was hydrolysed; hydrogen sulfide was produced in cysteine broth; and

it was Voges-Proskauer positive (Merchant and Parker, 1978).

Fecal samples contained nematode eggs at 1,500 eggs/g of feces. Mature and immature worms obtained from fecal culture were identified as *Echinochasmus perfoliata*.

Pathological lesions seen in this animal were similar to those described in other animals with *A. hydrophila* septicemia (Hiruma et al., 1986). The source of infection for this lynx could not be readily ascertained. It was not possible to examine the water and meat provided to the animal. The isolation of *A. hydrophila* in pure culture from the internal organs suggested its causal role in the fatal septicemia. The death of the lynx may have been precipitated by stress associated with changes in rainfall or relative humidity and temperature during the time of the year, while *A. hydrophila* alone may not cause mortality under normal conditions, during periods of stress the bacterium can be a problem (Gorden et al., 1970) and this should be considered in zoo animal management.

Technical assistance rendered by John Badung of our diagnostic laboratory is appreciated. Gratitude is expressed to M. C. Ekwonu, the zoo veterinarian, Jos Zoo for valuable information supplied for this report. We thank A. G. Lamorde, Director, National Veterinary Research Institute at Vom for permission to publish this report.

LITERATURE CITED

BULLOCK, G. L. 1964. Pseudomonales as fish pathogens. Development in Industrial Microbiology 5: 101–108.

CARTER, G. R. 1975. Diagnostic procedures in veterinary microbiology, 2nd ed. Charles C Thomas, Springfield, Illinois, 362 pp.

ESCH, G. W., T. C. HAZEN, R. V. D. MOCK, JR., AND J. N. GIBBONS. 1976. Thermal effluents and the epizootiology of cilliates *Epistylis* and the bacterium *Aeromonas* in association with centrarchid fish. Transaction of the American Microbiological Society 95: 687–693.

GORDEN, R. W., T. C. HAZEN, G. W. ESCH, AND C. B. FLERMANS. 1979. Isolation of *Aeromonas hydrophila* from the American alligator, *Alligator mississipiensis*. Journal of Wildlife Diseases 16: 239–243.

HIRUMA, M., K. IKE, AND T. KUME. 1986. Focal hepatic necrosis in young ferrets infected with *Aeromonas* spp. Japanese Journal of Veterinary Science 48: 159–162.

MARCUS, L. C. 1971. Infectious diseases of reptiles. Journal of the American Veterinary Medical Association 159: 1626–1631.

MERCHANT, I. A., AND R. A. PARKER. 1978. Veterinary bacteriology and virology, 11th ed. Iowa State University Press, Ames, Iowa, 752 pp.

SCHUBERT, L. 1971. *Aeromonas*. *In* Bergy's manual of determinative bacteriology, 8th ed. William and Wilkins, Baltimore, Maryland, 1268 pp.

SLOSS, M. W., AND R. L. KEMP. 1985. Veterinary clinical parasitology, 5th ed. Iowa State University Press, Ames, Iowa, 274 pp.

SOULSBY, E. J. L. 1976. Helminths, arthropods and protozoa of domestic animals, 6th ed. Bailliere, Tindale and Cassel Ltd., London, England, 824 pp.

Received for publication 19 October 1987.