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## Fatal Case of Salmonellosis (*Salmonella pullorum*) in a Chimpanzee (*Pan troglodytes*) in the Jos Zoo

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**ABSTRACT:** A case of salmonellosis in a captive chimpanzee (*Pan troglodytes*) is reported. Confirmatory diagnosis was based on clinical signs, necropsy and histopathological examination, and the isolation of *Salmonella pullorum* from the lung, liver, kidney and intestines of the animal. The source of infection was not ascertained.

**Key words:** Salmonellosis, *Salmonella pullorum*, chimpanzee, *Pan troglodytes*, isolation, pathology, clinical case history.

Documented reports on salmonellae in wild game from Africa are few. In Nigeria, Okoh and Onazi (1980) isolated 14 strains of the genus *Salmonella* from zoo animals and birds in the zoological garden at Kano, Nigeria. These included isolations of *S. elizabethville* and *S. liverpool* from a chimpanzee (*Pan troglodytes*). Falade and Durojaiye (1976) also reported isolation of *Salmonella* sp. from monkeys and other animals and birds in Ibadan Zoo Garden, Nigeria. However, none were isolated from the chimpanzee. Although a few *Salmonella* sp. are host specific, all known species potentially are pathogenic for a wide range of hosts including both mammals and birds (Jubb and Kennedy, 1970). Isolation and pathogenicity of *S. pullorum* from wild and captive animals have not been reported. This report describes a fatal case of salmonellosis in a captive chimpanzee caused by *S. pullorum*.

A 1-yr-old black female chimpanzee was found to be ill with constant diarrhea and anorexia. Treatment with Bisol-M® (Pfizer, Inc., New York, New York 10017, USA) containing methscopolamine and Neomycin and multivitamin syrup at one tablespoonful each was administered orally, twice daily for 4 days without any marked improvement. The diarrhea continued and

the animal became weak and emaciated. It died on day five of illness.

A complete postmortem was performed on the carcass and representative samples of the lung, liver, kidney and intestines were taken. Bacterial culture of tissue samples was performed as described by Carter (1975). Tissues were fixed in 10% buffered formalin. Paraffin sections were cut at 6  $\mu$ m and stained with hematoxylin and eosin.

At necropsy, there was evidence of mild pneumonia; both lungs were slightly congested. The liver had small foci of necrosis on the surface. The most significant lesions were found in the small intestine and consisted of ulcerative enteritis with grey exudate adhering to the mucosal ulcers. Small pale necrotic foci were found on the surface of the kidney.

Microscopically, lesions were confined mainly to the small intestine where there was edema, necrosis and hyperemia of the intestinal mucosa, fusion of villi and hyperplasia of the intestinal wall and a leukocytic infiltration. Microscopic examination of the liver and kidney did not indicate any specific lesions. All culture samples from tissues yielded a pure growth of *S. pullorum*.

Pathological lesions were similar to those found in domestic animals with salmonellosis. The latter include hyperplasia of the mucosa of the intestinal wall; edema, hyperemia, necrosis of the intestinal mucosa; and foci of necrosis in the kidney and liver (Jubb et al., 1985).

The source of salmonellosis for zoo animals are fruits and food indiscriminately provided by zoo visitors, and also native rodents and small birds which could have access to the cages (Okoh and Onazi, 1980).

However, the probable source of infection was not ascertained in this case.

*Salmonella pullorum* is a pathogen primarily of the domestic fowl and its transmission is mainly through water and feed (Merchant, 1977). Possibly, the source of infection of this chimpanzee was of avian origin through fecal contamination of its food and water sources. Whatever the source of the infection, isolation of *S. pullorum* from this animal was very unusual and this raises the potential problems in the management of other zoo animals and birds.

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