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Fatal Shigellosis in a Chimpanzee (*Pan troglodytes*) in the Jos Zoo, Nigeria

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ABSTRACT: Shigellosis due to *Shigella dysenteriae* was diagnosed in an adult male captive chimpanzee (*Pan troglodytes*) which died suddenly after a brief recovery from illness lasting at least 3 wk. Confirmatory diagnosis was based on postmortem examination and cultural isolation of *Shigella dysenteriae* from the intestine, liver, lung, spleen and heart blood.

Key words: Shigellosis, *Shigella dysenteriae*, chimpanzee, *Pan troglodytes*, case report.

Primates are the only hosts which are naturally susceptible to infection with *Shigella dysenteriae*. The disease is well known in man as bacillary dysentery and has been described in a variety of non-human primate species (Smith et al., 1972). Shigellosis is associated with poor hygiene and sanitation in developing countries. In man, the disease is seldom fatal unless associated with other factors. Its isolation and association with disease conditions in free-living and captive animals have not been reported in Nigeria. The present report describes a case of fatal shigellosis in a male captive chimpanzee caused by *Shigella dysenteriae*.

In April 1986 a case with frequent episodes of diarrhea with blood and mucus, abdominal pain, and loss of condition was reported in a 2½-yr-old black male chimpanzee from the Zoological Garden at Jos, Nigeria. Biosol-M (Pfizer Nigerian Ltd., 1 Henry Carr Street, Ikeja, Lagos, Nigeria) containing 200 mg neomycin sulfate and 2 mg methscopolamine bromide/ml was administered orally at the rate of 5 ml twice daily, for 1 wk. Ten percent panacur (Nigerian Hoechst Ltd., Plott 144, Oba Akran Avenue, P.O. Box 261, Ikeja, Lagos, Nigeria) containing 1.5 g fenbendazole was also administered once at a dose of 25 ml. There was some initial improvement but the animal died after 3 wk of illness. During postmortem examination, samples of

the lungs, liver, intestinal contents, spleen and heart blood were aseptically collected. Bacteriological examination of tissues followed the methods described by Carter (1975).

On postmortem examination lesions suggestive of acute septicemia including petechial haemorrhages on serous membranes (mesentery, pericardium and pleura) and swollen and congested visceral organs were seen. The colon mucosa was swollen, granular and haemorrhagic. The small intestine contained mucus with blood. *Shigella dysenteriae* was isolated from intestinal contents, lung, liver and spleen. A pure culture of this organism was obtained from the heart blood.

The colonies on deoxycholate citrate agar (DCA) were similar to those of *Salmonella* sp. though slightly smaller, about 1-1.5 mm in diameter, more translucent than those of the salmonellae, and did not have black centers. On MacConkey's agar (Oxoid Ltd., Basingstoke, Hampshire, England) the colonies were pale and colorless as lactose was not fermented. Also, H₂S was not produced in triple sugar iron agar (TSI; Oxoid Ltd.). Diagnosis of *Shigella dysenteriae* was made in the absence of manitol fermentation.

There are reports of *Salmonella* sp. infection in captive chimpanzees and monkeys in Nigeria (Okoh and Onazi, 1980; Falade and Dairo, 1982), but isolation of *Shigella dysenteriae* has not been documented in Nigeria. Man is the reservoir of infection and non-human primates acquire it by contact through food and water. It is possible that the chimpanzee acquired it from contaminated food from a human source or from carriers in the chimpanzee population. It is worthwhile to undertake routine examination of fecal cultures of all

chimpanzees in the Zoo and to treat those infected in isolation cages to prevent further spread of the infection. Treatment should include, in addition to antibiotics or other appropriate chemotherapy (sulfonamides, trimethoprim), parenteral fluid and electrolyte replacement.

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