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Short communication

Nodular trombiculinosis caused by *Apolonia tigipioensis*, Torres and Braga (1938), in an ostrich (*Struthio camelus*) and a house sparrow (*Passer domesticus*)

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Abstract

Nodular trombiculinosis has been reported in Brazil in chickens [Torres, S., Braga, W., 1939. *Apolonia tigipioensis*, g. e sp. n. (Trombiculinae) parasito de *Gallus gallus* dom. Chave para determinação de gêneros. Boletim da S.A.I.C. 4, 37–44] and humans [Carneiro, L.S., 1952. Uma nova acaríase humana—Contribuição ao seu estudo. Imprensa Industrial, Recife. Faculdade de Medicina da Universidade do Recife, Tese Livre Docência, p. 56]. In this report, a juvenile ostrich and a house sparrow, both originating from a riverside property in the town of Petrolina in the state of Pernambuco, presented 87 and eight nodules, respectively, on various locations of their bodies. Physical expression of the nodules liberated parasites that were morphologically identified as mites from the family Trombiculidae. The mites were further identified as *Apolonia tigipioensis* by the presence of an elongated body form and transversely striated, three pairs of long legs each with seven segments, primary coxae with a single seta, each tarsus terminating with three claws, and a scutum with an anteromedian projection and paired anteromedian setae. Histopathologic examination of skin biopsies from these birds, stained with hematoxilin–eosin, revealed acute parasitic cystic lymphoplasmacytic dermatitis.

Keywords: *Apolonia tigipioensis*; Ostrich; Trombiculid mite

1. Introduction

The interest in ostrich farming in Brazil began in 1995 followed by an exponential growth in the number of farms dedicated to this enterprise (Rosa, 2005/2006). Because this activity is new to the Northeast region of Brazil, the challenge facing the industry has been to increase the quality and productivity of ostriches by selecting animals that can adapt to the region's environment, including sanitation management, reproduction, and nutrition.

Ostriches are often infested with ectoparasites that cause economic loss by reducing the quality of feathers

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and damaging the hides, as well as by pruritus, causing aggression, stress and fighting among birds (Ponce Gordo et al., 2002; Fagundes et al., 2004; Ribeiro et al., 2004; Cooper, 2005).

Trombiculinosis caused by *Apolonia tigipioensis* (Acari: Trombidiformes) was first described in chicks (Torres and Braga, 1939), in which the parasites were localized in the cannon of new feathers, causing the formation of nodules principally at the tibiotarsal joint.

The species *A. tigipioensis* is the only member of the genus. The presence of numerous nodular lesions results in high mortality rates in birds. This mite also causes a nodular dermatitis in humans. Carneiro (1952) reported a human case involving *A. tigipioensis* and an extensive study on its human histopathology.

Brennan and Reed (1975) reported this species parasitizing a bat (*Leptonycteris curosoae*), a rabbit (*Sylvilagus floridanus*) and a mouse (*Mus musculus*) from Venezuela.

This study reports an occurrence of the mite *A. tigipioensis* infesting an ostrich and a house sparrow in Petrolina, Pernambuco, and describes the morphologic characteristics and histopathology of the lesions.

2. Materials and methods

A juvenile African Black ostrich (*Struthio camelus*) approximately 2 months of age, and a house sparrow (*Passer domesticus*) were presented with numerous nodules on various parts of their bodies. The birds originated from a riverside property in the town of Petrolina, located in the mesoregion of the São Francisco River in the state of Pernambuco, at latitude 09°04′08″S and longitude 40°19′11″W. This area has a warm semi-arid climate with an average annual temperature of 26 °C, annual precipitation of 548 mm, and a rainy season in the months of February and March. The predominant vegetation is hyperxerophilic scrubland (CPTEC, 2006).

The entire body of each animal was examined. Nodules were counted and expressed with fingers to visualize the parasites. Expressed material was cleared in lactophenol, mounted permanently on slides with Canada balsam, and parasitic identification performed according to the description of description of Torres and Braga (1939) and Furman and Catts (1970).

Fragments of cutaneous nodules collected at necropsy were fixed in 10% neutral buffered formalin and processed using routine paraffin-embedding techniques. Four micrometer histologic sections were cut and stained with hematoxilin and eosin (Luna, 1968) for morphologic diagnosis.

3. Results and discussion

In 1996, ostrich farming began in the town of Petrolina. The majority of healthy birds originated in South Africa. Several months after the first breeding season, trombiculinosis appeared in young ostriches at a particular riverside farm in Petrolina. Soon after this outbreak, more occurrences were documented at properties within 30 km of the initial focus. Based on the clinical history, the owner of the initial farm reported that the disease is frequent on properties in the area and that affected young ostriches present with weakness, lethargy, and anorexia with nodules on various parts of their bodies. In the nursery areas, it was common to see sparrows in search of food. Nodules were not observed on chicks from nurseries with screen protection. Treatment was performed by adding 2% cattle sulfur to the ration daily for 60 days. The effectiveness of the treatment was determined by counting nodules. The use of pour-on medications containing cypermethrin (5%) and ivermectin (0.5%) were not effective to control the infestation, when was performed monthly. Animals were treated with the chemical parasiticides according to the manufacturer's recommended dose.

In the juvenile ostrich received by the Veterinary Diagnostic Parasitology Laboratory at the Federal University of Bahia, 87 nodules were found distributed across its entire body, especially in the regions of the neck and thighs (Fig. 1). In the sparrow a total of eight lesions were distributed on the ventral aspect of the body and on the thighs.

The nodules were firm with a central opening, the same as described by Torres and Braga (1939) and

Fig. 1. Nodular dermatitis caused by *Apolonia tigipioensis*, in an African Black ostrich (*Struthio camelus*), 2 months of age, originating from the town of Petrolina, Pernambuco.