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Short communication

A CASE REPORT OF SCALY LEG MITE IN GREEN PEAFOWL (*Pavo muticus*)

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SUMMARY. This is a case report of a captive female green peafowl (*Pavo muticus*) that was presented with severe scaly legs with raised encrusted scales on both legs. Diagnosis of scaly leg mite was made based on history, clinical signs, and results of parasitological examination from deep skin scrapping from the area of lesions and response to treatment. Treatment consisted of Ivermectin solution, administered orally at a dose rate of 0.2 mg/kg. The gross lesions were completely resolved 28 days post treatment. It was concluded that based on the treatment given, knemidocoptiasis or scaly leg can be successfully controlled with good prognosis in captive birds. Care should be taken as the mite is transmitted from bird to bird through prolonged close or direct contact.

Keywords: scaly, encrusted, deep skin scrapping

The peafowl are birds in the genera *Pavo* of the Phasianidae family, and are known for the male's piercing call and, among the Asiatic species, his extravagant eye-spotted tail covert feathers which he displays as part of a courtship ritual (Davies *et al.*, 2012). Peafowls are forest birds that nest on the ground but roost in trees. In captivity, they need to be housed in large aviaries.

Scaly Leg Mite infection is caused by a burrowing mite (*Knemidocoptes mutans*) which causes scaly, raised encrusted scales on the legs of birds and other avian species. Scaly leg can cause intense irritation to the bird by burrowing under the scales, causing them to become raised and thickened. The scales often look like they are protruding outwards and parts of the scales will come off, making the legs look unsightly (Mercks, 2010). Birds need to be treated to kill the mites and then scales left to come away naturally through a moult. According to Bowman,

1995, *Knemidocoptes* species mites spend their entire three-week life cycle on their bird hosts. The females are viviparous and the larvae have three pairs of legs. After two nymphal stages, the mites mature into adults that have four pairs of legs. The mites burrow into the feather follicles and stratum corneum, primarily on the face, feet, and comb, where they feed on keratin. Most commonly, the unfeathered regions (beak, eyelids, legs, and vent) are affected. As the mites burrow, they form tunnels and may get further infected with secondary bacteria causing pain and eventually death. The mites are transmitted from bird to bird through prolonged close or direct contact. Although the mites are primarily transmitted from parent to unfeathered nestlings, knemidocoptiasis appears to be more opportunistic than infectious and seldom found in wild birds but more commonly in captive birds especially if there is overcrowding in the aviaries.

In this case, a female green peafowl (*Pavo muticus*) with the microchip identification number 900032000020507 weighing about 5 kg was presented with severe raised encrusted scales on the both legs. The bird was housed in an aviary with other peacocks and peahens, usually in pairs, in Pusat Pendidikan Biodiversiti Bukit Marak, Terengganu (Biodiversity Educentre). At this centre, conservation activities are carried out for peafowl which involves, breeding, rescue and treatment. There were a total of 13 birds in this centre; seven male and five female adults, and one juvenile. Another 10 birds were

placed here also belonging to another organization (UPEN) for conservation purposes. All birds were fed routinely with cracked grains, fruits and a variety of local vegetables and provided water *ad lib*. The keeper noted the skin lesions on the peafowl which showed clinical signs of difficulty in perching and walking. However, the bird was otherwise normal with good appetite, active and alert. On presentation, physical examination revealed raised encrusted scales on the both legs as shown in Figure 1. The skin of both feet was markedly thickened and covered with thick friable crusts (hyperkeratosis). The differential diagnoses when presented were parasitic infestation, that is, scaly leg mite infection (*Knemidocoptes jamaicensis*), fungal infestation, contact dermatitis and hyperkeratosis due to allergy.

A deep skin scrapping was done on the leg lesions and the sample was sent for laboratory analyses (Christopher *et al.*, 1992). The microscopic examination of the scrapping did not reveal any mites. This could be due to the sampling method or preservation as the mites can move away very rapidly when disturbed. Moreover, a drop of glycerol on the scrapping may have helped to maintain the mites to facilitate microscopic examination.

However, based on the clinical signs and pathognomonic lesions, treatment was instituted with Ivermectin at a dose rate of 0.2 mg/kg, given orally three times every fortnight over a period of six weeks. The Ivermectin had an original concentration of 10 mg/ml solution but was diluted with



Figure 1. Condition of lesion when presented, indicating crusty lesions on both legs of peafowl.



Figure 2. Crusts on the legs of peafowl fall off after the second treatment about two weeks after presentation



Figure 3. Leg lesions completely healed after the third treatment about five weeks after presentation

sterile water to obtain a 1 mg/ml solution. With the dose rate of 0.2 mg/kg, the 5 kg bird was given 1 ml of the diluted Ivermectin orally, 3 times 2 weeks apart. Observations were made on the progress of healing of the lesions as shown in Figures 2 and 3. Two weeks after the onset of treatment, the scales were sloughing off and after the third treatment, the bird was fully healed with both legs devoid of crusty scales, with new skin growth. The bird was observed to be healthy, active and alert.

The prognosis in this case is good. The bird responded to treatment well since the gross lesions were reduced and completely healed after the third treatment. One important consideration in diagnosing parasitic infections of the skin, is the effectiveness in sampling technique which is crucial in identifying the accurate causative agent. In most cases, scrapings should be taken from the edge of the lesion, from obviously pruritic locations, and from where there are thick, crusty flakes. Take a skin scraping by holding a scalpel blade or other sharp instrument at a right angle to the skin and scraping off the outer surface of the skin. For those mite species that burrow into the skin, the scraping must be deep enough to cause a small amount of blood to ooze from the scraping site. A drop of mineral oil or glycerol may be placed on the blade to help hold the skin scrapings during the procedure. Skin scrapings should be placed in sealed containers (e.g. clean, empty salve tins; stoppered glass/plastic test tubes; small, sealable plastic bags) and promptly taken

or sent to a laboratory for more thorough examination (Klayman & Schillhorn van Veen, 1981). In this case, skin scraping is done at the site (aviary) and limitations due to handling and restraining the patient effectively as well as biosafety and security need to be resolved in order to obtain a good sample for diagnostic work.

Treatment of choice for birds with scaly leg mite lesions is Ivermectin given orally; which was very effective in this case. Some suggested preventative measures are: aviary hygiene, cleanliness and preventive care such as prophylactic acaracidal treatment (Merck, 2010). Knemicoptic mite infection is not zoonotic. It is important for avian species as it causes unsightly, uncomfortable, and potentially life-threatening lesions. It is economically important for zoos or captive bird management, especially of rare, exotic or valuable bird species.

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