Aspergillosis in Emu Chicks

C. Theophilus Anandkumar, J. Selvaraj, G. Balakrishnan, S. Saraswathi, D. Baskaran, Parimal Roy, B. Murali Manohar and H. Gopi

Veterinary University Training and Research Centre, Tamil Nadu Veterinary and Animal Sciences University, Vellore 632 009

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The present paper documents Aspergillosis in Emu chicks (Dromaius novaehollandiae) in a hatchery unit at Vellore district, located in the Northern part of Tamilnadu.

Materials and Methods

Two emu chicks (8-weeks old), one live and one dead, belonging to an organized private farm were received at the Veterinary University Training and Research Centre, Vellore, with the history of debility, dyspnoea, bilateral discharge from the nostrils since the past two weeks and unsatisfactory feed intake since a month.

Histopathology samples and virological samples for hemagglutination and Hemagglutination inhibition tests were collected. Impression smears prepared from the nodular lesions, liver and lungs were stained with Giemsa. Heart blood swab was cultured in Sabouraud’s Dextrose agar at 37°C. Impression smears from the nodular lesions were stained with Lactophenol cotton blue. The contents of the nodules were treated with 10% Potassium Hydroxide solution for direct examination.

Results and Discussion

The clinical signs observed in the ailing emu chick were unthriftiness, listlessness, gasping along with open mouth breathing and immobility. The emu farm had 51 chicks (8-week old). The morbidity rate was 3.92 per cent and mortality rate was 1.96 per cent. Gross lesions observed on post-mortem examination were numerous firm, round grayish white nodules of varying sizes (millet to pea size seen) throughout the lungs and loosely attached single to multiple nodules ranging from 3-7mm, over the air sacs, proventriculus, gizzard, abdominal and thoracic wall. The liver, spleen and kidneys were enlarged. The case was tentatively diagnosed as systemic aspergillosis. A similar pattern of systemic aspergillosis in Emu chicks was reported for the first time in Kerala by Karunakaran et al. (2010).

Lung nodules on Lactophenol cotton blue staining revealed fungal hyphae. The contents of the nodules when examined directly using 10% Potassium Hydroxide and the impression smears stained with Giemsa also revealed fungal hyphae. The culture of the heart blood swab streaked on Sabouraud's Dextrose agar revealed characteristic fungal growth in five days. The colonies which were initially white in colour became bluish green later. Lactophenol cotton blue staining of colonies revealed hyphae bearing conidophores that were morphologically identical to Aspergillus fumigatus. No acid fast organism could be detected from the lung impression smear. Microscopically tissue revealed central necrotic area with septate hyphae surrounded by mononuclear cell infiltration in the lungs (mycotic granulomatous pneumonia), moderate hyperaemia in the liver, reticular cell hyperplasia in the spleen and mucosal congestion of the proventriculus. The findings were in accordance with the findings of Karunakaran et al. Loc. cit who had reported aspergillosis in emu chicks. Hemagglutination

*Corresponding author: Email: thephy123@rediffmail.com

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and Hemagglutination inhibition tests for Ranikhet disease virus were negative. Also, no egg or larvae of helminthes in the intestinal contents or faecal droppings could be detected. The case was confirmed as systemic aspergillosis and it was concluded that the invasive fungi had spread from respiratory system to other organs to cause systemic type of infection.

The emu chicks were treated with copper sulfate one g per two liters of drinking water along with antibiotic for five days. As control measures, the favorable conditions for fungal growth were prevented by fumigation of hatchery unit for subsequent batches using formaldehyde and potassium permanganate, removing dampness in litter around waterers and controlling the dust in brooding sheds by slightly wetting the litter before raking or removing the litter. Copper sulfate solution one g in two liters of water was sprayed on the litter material for 3 days daily in the morning. A good response by chicken to this treatment was also reported by Islam et al (2009). One ailing chick did not respond to antibiotic treatment and died due to the severity of aspergillosis. But the prompt diagnosis along with the biosecurity measures prevented the aspergillosis outbreak in the remaining emu chicks.

References