Emu (Dromaius novaehollandiae) belong to ratite group and have high economic value for their meat, eggs, oil, skin and feathers. These birds are adaptable to varied climatic conditions. Recently, commercial farming of emu has gained much importance in India.

Aspergillosis is the most common opportunistic mycotic infection of respiratory tract in birds causing high morbidity and mortality (Tell, 2005). Acute cases are seen following inhalation of a high dose of spores due to heavy environmental contamination (Redig, 1997). Aspergillus fumigatus accounts for 95% of the cases and A. flavus is the second most common organism associated with avian infections (Tell, 2005). However, information regarding outbreak of aspergillosis in emu is inadequate. It is important to make a quick diagnosis to have a good prognosis, because the treatment is ineffective in advanced cases. We describe here the occurrence of severe pulmonary aspergillosis caused by Aspergillus fumigatus in emus determined by the history, pathology, and fungal isolation.

Three emu chicks in the age group of six weeks were brought to the Department of Veterinary Microbiology, Veterinary College and Research Institute Namakkal, Tamil Nadu, India for diagnosis. These birds were from a flock of 30 birds and out of which nine birds were ailing and two birds succumbed to the disease. The birds were fed with a mixture of alfalfa hay and a concentrate ration ad libidum. No antibiotic or antifungal treatment was carried out.

The emu chicks showed severe respiratory distress, dyspnea, cough, anorexia, dullness, ataxia, in coordination and unthriftyness. The birds were depressed, did not move much and showed laboured respiration, which was seen as exaggerated movements of ribs and chest in and out with each breath combined with opened mouth breathing. Overcrowding and contacts with other avian species (i.e., chickens) in a closed confinement were predisposing factors for origin of the infection in this case. These observations were in accordance with the reports on aspergillosis (Oglesbee, 1997).

The ailing birds were sacrificed and samples were collected for histopathology and microbiological examination.

Necropsy revealed several small yellow nodules in the lungs due to the inhaled spores germinating inside. Microscopically, the nodules on the lungs consisted of granulomatous necrotic areas containing inflammatory cellular infiltrations, numerous thin, tubular septate branching fungal hyphae with parallel-sided walls, spherical spores and fibrous tissue proliferation at the periphery. Numerous fungal hyphae arranged in radial pattern were also detected in the lumen of parabronchioles and on the lung surface.
The clinical signs and postmortem findings in these birds were similar to those previously described for other avian species with pulmonary aspergillosis (Oglesbee, 1997).

Fungus was isolated from lung tissue, air-sacs in Sabouraud dextrose agar (SDA, Himedia) with Chloramphenicol (0.05 mg/mL) and incubated under aerobic condition at 25oC for 3-5 days (Jung et al., 2009). The colonies have a diameter of approximately 3 to 4cm in 7 days (Fig.1). The flat colonies were white at first, and then bluish green as conidia began to mature, especially near to the center of the colony. As the colony matured, conidial masses became gray-green, while the colony edge remained white. The colonies were transferred using Roth flag technique (Quinn et al., 1994) to a clean microscopic slide containing few drops of Lactophenol cotton blue stain. Microscopically, mycelia were composed by tubular septate hyphae(Fig.2). The fungus presented smooth conidiophores with vesicles and phialides arranged upward paralleling the axis of the conidiophores. Conidia were echinucleated, spherical to semispherical and 2-3 μm in diameter. Based on the colonial morphology and microscopic morphology the isolated fungus was identified as *Aspergillus fumigatus*. Elizabeth et al. (2002) and Sunitha et al. (2010) reported similar mycotic pneumonia in great rheas and emus respectively.

Based on the microscopic detection of fungus in the lung tissue followed by isolation and identification of the fungus, the case was diagnosed as aspergillosis.

The farmer was advised to shift the birds to a well ventilated dust free area with out overcrowding and minimizing stress. The birds were treated orally with copper sulphate @ 2.5 grams per 100 litres of drinking water for 3 days. All the birds recovered after treatment.

Aspergillus genus is an opportunistic pathogen and the disease Aspergillosis has a poor prognosis when the tissue infection is extensive. Therefore every attempt should be made to reduce predisposing immunosuppressive factors such as stress and malnutrition (Oglesbee, 1997). To avoid inhalation of large number of spores, birds should be housed in ventilated area with out over crowding and prevented access to mouldy feed.

REFERENCES


