International Journal of Livestock Research, Vol. 10 (5) May' 2020
http://www.ijlr.org
eISSN: 2277-1964
NAAS Rating 2020 – 5.36

Case Report

Occurrence of Aspergillosis in Guinea Fowl

P. Manaswini Reddy[1], Shaik Maimona Parveen[1], K. Aparna[1], M. Srikanth Reddy[2], Y. Ravikumar[1*], K. Sandhyarani[1], B. Swathi[1] and M. Lakshman[1]

[1]Department of Veterinary Pathology, College of Veterinary Science, PVNRTVU, Hyderabad-500030, INDIA
[2]Department of Veterinary Microbiology, College of Veterinary Science, PVNRTVU, Hyderabad-500030, INDIA

*Corresponding Author: ravikumaryadala@gmail.com

How to cite this paper: Reddy, P., Parveen, S., Aparna, K., Srikanth Reddy, M., Ravikumar, Y., Sandhyarani, K., Swathi, B. & Lakshman, M. (2020). Occurrence of Aspergillosis in Guinea Fowl. *International Journal of Livestock Research*, 10(5), 134-137. doi: http://dx.doi.org/10.5455/ijlr.20200102113126

Received : Jan 02, 2020
Accepted : Mar 17, 2020
Published : May 31, 2020

Abstract

Aspergillosis is an infectious, non contagious fungal disease caused by Aspergillus species in wild and domestic birds characterized by primary involvement of lower respiratory system. Here, a case of pulmonary aspergillosis in guinea fowl with respiratory distress was reported. At necropsy, caseous nodules were observed in lungs, caseous plaques were observed on air sacs. Mycological examination revealed presence of dichotomous hyphae. Microscopically, histopathological examination revealed granulomatous pneumonia. Based on the gross, mycological and histopathological examination, the present case was diagnosed as pulmonary aspergillosis.

Keywords: Aspergillosis, Guinea Fowl, Granulomatous Pneumonia

Introduction

Aspergillosis is an infectious, non contagious fungal disease caused by aspergillus species in wild and domestic birds characterized by primary involvement of lower respiratory system (Leishangthem *et al*., 2015 and Aparna *et al.*, 2020). It's a common mismanagemental problem and predisposing factors are immunocompromised host and exposure to overwhelming spores. Species involved are *Aspergillus fumigatus*, *Aspergillus flavus*, *Aspergillus niger* and *Aspergillus terreus* (Okoye *et al.*, 1988). These are common saprophytic moulds that grow on organic matter in warm (25°C) environment and damaged eggs in the hatcheries. Infection is acquired from environmental exposure, disturbances of soil, movement of hay and litter produced aerosols. They are reproduced by asexual reproduction, when growth starts hyphae together form mycelia and produces conidiophore, phialides that produce single celled uni-nucleated or multi- nucleated conidia/spores which help in dissemination of fungus (Genene *et al*., 2016). There are two forms of Aspergillosis: Acute form is seen in young birds with high morbidity and mortality. Chronic form is sporadic and seen in older birds, with less mortality (Saif *et al.*, 2013).

The present report deals with the occurrence of pulmonary aspergillosis in guinea fowl (*Numida meleagris).*

Materials and Methods

A carcass of male guinea fowl aged 15 weeks was presented for necropsy at Department of Veterinary Pathology, College of Veterinary Science, PVNRTVU, Hyderabad with clinical history of rapid dyspnoea, gasping and nasal discharges since 3-4 days. Collected suspected lung samples aseptically for mycological and histopathological examination. The samples for histopathologic examination were fixed in 10% neutral buffered formalin. Mycological cultural examination was performed by streaking the lung swabs on Sabouraud's dextrose agar (SDA) with 0.05mg/kg chloramphenicol and incubated at 25- 35°C in inverted position for one week. (Saif *et al.*, 2013). For microscopic examination, a drop of lactophenol cotton blue was placed on a clean slide, the sample was teased, covered with cover slip and observed under light microscope. Routine histopathology was performed by processing and embedding the lung tissue in paraffin blocks and stained with Periodic Acid Schiff (PAS) stain (Culling, 1963).

Results and Discussion

Clinical signs reported were rapid dyspnoea, gasping, nasal discharges and swollen eyes in the last 3-4 days. Postmortem examination revealed yellow cheesy flakes on airsacs and consolidated lungs with multiple hard creamish yellow coloured pinhead sized granuloma up to size of pea (Fig. 1). Mycological examination of lung nodules by lactophenol cotton blue stain revealed dichotomously branched, colourless conidiophores with globose - subglobose vesicles with phialides with conidia (hyphae and spores) (Fig. 2). After one week of incubation, fungal growth was observed in the culture plates of Sabouraud's Dextrose Agar (Fig. 3). PAS stained lung sections revealed fungal hyphae and necrosis (Fig. 4), few sections revealed granulomatous inflammation with caseous necrotic foci (Fig. 5). The findings of present study were in accordance with the results of Frank *et al.* (1945) and Khaled *et al.* (2018).

Figure 1: Multiple grey to white coloured nodules of varied size in the lung

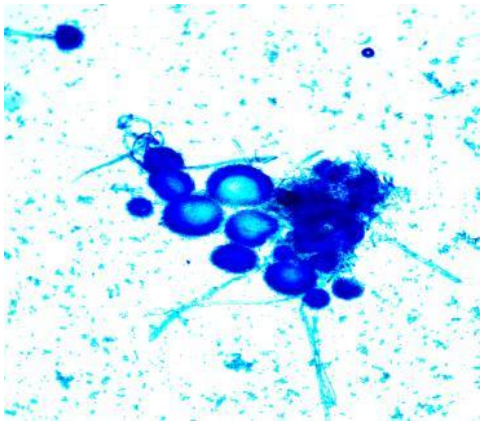

Figure 2: Lactophenol cotton blue (LPCB) staining revealed the presence of *Aspergillus* sps., spores and hyphae (Original magnification x100)

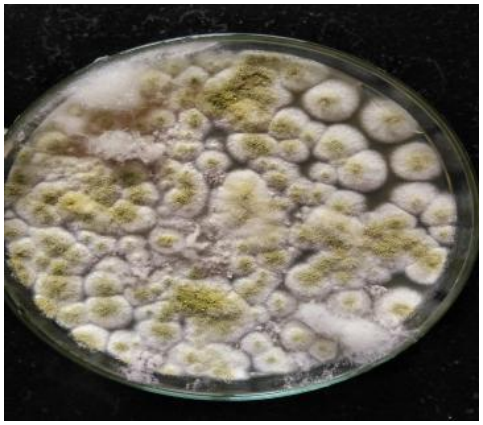

Figure 3: Fungal growth was observed on Sabouraud Dextrose Agar (SDA) from suspected lung tissue

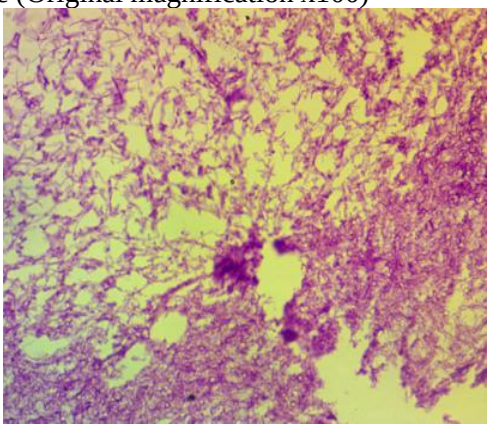

Figure 4: Photomicrograph of lung section revealed presence of fungal hyphae and necrosis. PASx100

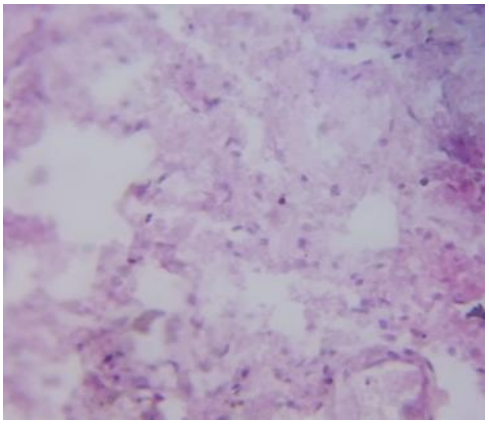

Figure 5: Photomicrograph of lung section revealed granulomatous inflammation with caseous necrotic foci. PASx400

Conclusion

In conclusion, the present case report was diagnosed as pulmonary aspergillosis caused by Aspergillus sps. in guinea fowl by gross lesions like nodules in lungs, fungal staining, cultural examination for fungal growth, histopathological examination with PAS staining.

Acknowledgement

Authors were highly grateful to PVNRTVU, Rajendranagar for providing facilities to carryout present case study.

Conflict of Interests

There is no conflict of interest.

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