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A Chronic Case Of Aspergillosis In Adult Duck: A Case Report

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Introduction:

Aspergillosis is a contagious respiratory disease that can affect many types of birds leading to decrease productivity and heavy economic loss. All organs can be affected by Aspergillosis, which mostly affects the respiratory system but can cause a range of symptoms from acute to chronic illnesses. Acute aspergillosis is prevalent in young birds, though it can manifest clinically in a variety of ways and adult birds are more likely to have the chronic type (Tell, 2005; Charlton *et al.*, 2008).

It is thought that having weakened immunity and breathing in a significant number of spores are major contributing factors. The most common forms of animal Aspergillosis are pulmonary infections in poultry and other birds (Paskal *et al.*, 2011) which are mainly caused by *Aspergillus fumigatus* and *Aspergillus flavus*. Aspergillosis occurs due to inhalation of spores from contaminated feed, litter and water. Stress, a dusty atmosphere, and elevated ammonia level in poultry house raise the risk and intensity of infection. Aspergillosis is most commonly found in young birds up to 14 days old, but older birds can also get it if they are under stress condition or have suppressed immune system. Ducks are found to be 10 times more susceptible to Aspergillosis than chicken. The present study deals with the case of Aspergillosis in duck on the basis of post mortem and histopathological examination.

Case History:

A total of 15 ducks were being raised near a pond. All ducks were fed with rice, crushed wheat while source of water for them was a pond. Vaccination and deworming program were not practiced. One of the ducks which was approximately two year old was brought to Department of Veterinary Pathology, Ayodhya for detail post mortem examination. The duck's breathing was short and open-mouthed, its neck was stretched, and it was gasping in the final days of its life. It was treated with melonex and

neurokind for 3 days before death.

Observation:

Following changes were observed during post mortem examination which was done on the same day of death. There were white caseous nodules in several places, including the intestines, gizzard, proventriculus, lungs and thoracic air sacs (Figure 1). Granulomatous pneumonia was caused by distributed caseous nodules that had a significant impact on the lungs (Figure 2). Furthermore, there was widespread staining and enlargement of the liver. When the sliced surface was cross-sectioned, liver was found severely congested (Figure 3).

Histopathological Findings:

For histopathological examination, the required tissue samples were collected in 10% formalin solution and proceeding for histopathological examination by sectioning and H & E staining. Examination of the air sacs revealed thickening of the air sac walls with prominent inflammatory infiltrates, predominantly comprised of lymphocytes and macrophages. Granulomatous changes were noted in some areas. Fungal hyphae suggestive of Aspergillus species were observed indicative of fungal colonization. The findings are indicative of chronic air sacculitis, most likely due to Aspergillus species. For confirmatory diagnosis, further staining and culture of the organism were done.

Figure 1

Figure 2

Figure 3

Additional Diagnosis:

Culturing the pathogenic organism on different media is necessary to isolate it and properly identify the species. Lung, liver, and air sac were the afflicted organs from which Aspergillus species were isolated. After being inoculated into Sabouraud Dextrose Agar (SDA) plates, the samples were cultured for seven days at 37 °C. Using the lactophenol blue staining procedure, slides were made for the identification of mycelium and hyphial arrangement, and *Aspergillus fumigatus* was recognized based on its unique colony characteristics.

Differential Diagnosis:

Symptoms of Avian aspergillosis are general and dependent on the system. Although pulmonary aspergillosis must be differentiated from other mycoses and mycobacteriosis, the granulomatous lesions

at necrotic sites usually help to differentiate it from other avian respiratory illnesses. Distinguishing aspergillosis from chlamydiophylosis, TB, neoplasia, vitamin A deficiency, bacterial disease, candidiasis, ascitis, hepatomegaly, and pneumonia is important (Walsh *et al.,* 2011).

Result and Discussion:

It can be extremely difficult to identify Aspergillosis in antemortem since its symptoms, especially in its chronic form, might be confused for those of a variety of different disorders. The affected duck exhibited clinical indications such as dyspnea, respiratory distress, gasping, and fast breathing, which were associated with stunted growth, appetite loss, weariness, and increased thirst. The clinical symptoms were consistent with prior reports in poultry afflicted by Aspergillus species (Sajid *et al*., 2006 and Pascal *et al*., 2011). According to Barton (2013), direct examination of gross lesions, histopathological findings of the lungs, and culture of isolates from respiratory secretions are the standard laboratory techniques for the invasive pulmonary Aspergillosis (IPA) diagnosis. The post mortem examination revealed white caseous nodules in the lungs or air sacs. Consolidation of lung parenchyma was observed. The findings were similar to prior report of Aspergillus infection (Charlton *et al*., 2008).

Chronic aspergillosis in ducks, caused mostly by *Aspergillus fumigatus*, can result in serious health hazards and death, especially in older birds. As ducks become older, they may develop chronic respiratory problems that are characterized by a progressive deterioration in health, culminating in chronic cases that can lead to death due to compromised pulmonary function. Chronic aspergillosis usually develops after an acute phase, where young birds may have high mortality rates (5% to 50%) due to respiratory distress.

Conclusion:

Early diagnosis of fungal diseases and initiation of antifungal therapy based on the identification of the causative agent constitutes an effective treatment strategy.

References:

Barton R. C. 2013. Laboratory diagnosis of invasive aspergillosis: from diagnosis to predicition of outcome. Scientifica (Cairo) :459405. doi: 10.1155/2013/459405.

Charlton, B.R., Chin, R. P. and Barnes, H. J. 2008. Fungal Infections. In. Diseases of Poultry, Saif, Y.M., Faddy, A.M., Glisson, J.R., Mcdougald, L.R., Nolan, L.K. and Swayne, D.E. 12th Ed., Blackwell Publishing, Ames, Iowa 50014, USA. pp. 989-1008.

Mi Na Han, Mun Hui Chae, Seong Tae Han,2023.Aspergillosis in breeding ducks. Korean J. Vet. Serv. 2023; 46(3): 203-210. doi: 10.7853/kjvs.2023.46.3.203.

Pascal A., Simon T., Dongying W., Manjula D., Guillaume L., Anaïs D., Françoise F., Adélaïde N., Weiyi H., René C. 2011.Aspergillus fumigatus in poultry. International Journal of Microbiology. doi: **10.1155/2011/746356**.

Sajid M.A, Khan I.A, Rauf U. 2006. Aspergillus fumigatus in commercial poultry flocks, a serious threat to poultry industry in Pakistan. Journal of Animal and Plant Sciences ,16 (3-4):79-82.

Tell, L.A. 2005. Aspergillosis in mammals and birds: Impact on veterinary medicine. Med. Mycol. 43: 71-73.doi: 10.1080/13693780400020089.

Walsh T.J, Wissel M.C, Grantham K.J, Petraitiene R, Petraitis V, Kasai M, Francesconi A, Cotton M.P, Hughes J.E, Greene L, Bacher J.D, Manna P, Salomoni M, Reddy S.K. 2011. Molecular detection and species-specific identification of medically important Aspergillus species by real-time PCR in experimental invasive pulmonary Aspergillosis. J Clin Microbiol 49:4150-4157. doi: 10.1128/JCM.00570-11.

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