

Brooder pneumonia (Aspergillosis) in poultry and their Management

Manoj kumar Sinha*, Manju Sinha

Assistant Professor, Department of Veterinary Anatomy, Bihar veterinary college, Patna
Assistant Research Officer, Division of Virology, Institute of Animal Health & Production, Bihar,
Patna

Introduction

Aspergillosis is a respiratory disease of chicken, turkey, humans and other mammals and less frequently ducks, pigeon, geese and other wild and domestic birds. Of all the mycotic diseases in poultry aspergillosis and candidacies are more important. Aspergillosis mainly affects the respiratory system. Their wide-ranging thermal tolerance makes them ubiquitous organisms on farms and in hatcheries and laboratories. It is a common mismanagement problem and causes a high mortality in chicken. Aspergillosis has a zoonotic importance and Aspergillosis is transmitted to man by handling infected birds and animals, inhalation of spores from infected feed and litter, poor sanitation, poor hygienic condition and by eating under cooked contaminated poultry. Environmental factors play an important role in the development of the disease include the number of spores to which the bird exposed, poor sanitation in the house as well as food contaminated with faces promote for fungal growth. Aspergillosis is the most common fungal infection of respiratory tract in birds causing high morbidity and mortality. Thus, causing significant economic losses especially in poultry.

Etiology

Aspergillus fumigatus and *Aspergillus flavus* are the most common species causing aspergillosis in poultry. Other species like *A. flavus*, *A. nidulans*, *A. niger*, *A. candidus* are also responsible for this disease. High moisture content (above 14%) of the feed provides suitable environment for the growth of fungi. If the litter contains sugarcane bagasse it supports the growth



of fungi. Lowering the body defence mechanism, excessive use of antibiotics and immunosuppressive drugs makes the birds more susceptible to aspergillosis. Typically, young animals (first 2 weeks of life) are affected with acute aspergillosis. Aflatoxin produced by *Aspergillus fumigatus*. There are 8 types of aflatoxin namely B1, B2, G1, G2, M1, M2 B29 and G29Aspertoxin released by *Aspergillus flavus*.

Symptoms

If respiratory system is affected dyspnea, labored breathing, fever, depression and emaciation with loss of appetite and thirst develop. Lesions are developed in the birds above 5 days of age. Lungs shows raised; pinhead sized yellowish nodules. Necropsy reveals white, creamy nodules in and on the air sacs and viscera. The nodules can be found inside the airways, especially near the syrinx, severely occluding air flow and causing the silent gasping condition. On rare occasion, the fungal masses can be found in the brain. Opacity may develop on the surface of the eyes in cases of ocular infection. Within the first 3-5 days newly hatched chicken infected in the hatchery show a very rapid and difficult breathing and start breathing with an open mouth (gasps) due to the gradual obstruction of the air passage. Lung shows the presence of cream color nodules in plural surface, air sacs and creamy to yellow color nodules shows throughout the lung.

Diagnosis

- Based on clinical symptoms and gross lesions.
- Confirmation is by culture or histopathology- Demonstration of fungus by lacto phenol cotton blue stain. The caseous material of nodules in the lungs or air sacs mix with this stain show bluish segmented filaments of fungus under microscope. Fungus can be cultured on saboroud's dextrose agar at 35°C.

Prevention and control

- No effective treatment but tetracycline sorbate given at the rate of 200 mg/liter of drinking water successfully treat the aspergillosis in poultry.
- Use of Hamycin at the rate of 10 ml suspension /liter of drinking water for 7-10 days controls the disease.
- Drugs which are commonly used include itraconazole, ketoconazole, clotrimazole, miconazole, fluconazole and Amphotercin B. From these drugs, itraconazole is a choice of treatment of the disease.
- Cull the affected and remove contaminated litter to prevent further contamination.



- Disinfect the premises before getting new birds.
- For prevention of aspergillosis, feed with low moisture content, avoid moldy or dusty feed and provision of dry litter is essential.
- Removing the birds from the contaminated environment and limit the further exposure.
- Trying not to disturb the contaminated materials in order to limit further aerosolization of spores; and increased ventilation or air exchange rates to possibly minimize the severity of the outbreak. Strict adherence to cleaning and disinfection procedures for any contaminated environment (hatchery, barn, etc.) will minimize the risk of future outbreaks.
- Grossly contaminated or cracked eggs should not be set for incubation because they enable bacterial and fungal growth. Affected eggs may explode and disseminate spores throughout the hatching machine. The use of moldy bedding or ranges should be avoided to prevent outbreaks. Contaminated surfaces may be sprayed or fumigated with enilconazole or other fungicidal disinfectant following the label directions.
- Proper Sanitation of hatching equipment, cleaning and disinfection of feed and water utensils.
- Poultry house must be well ventilated, avoid overcrowding in poultry house. Use mold inhibitor in the feed for suspected outbreak.
- It is advisable to treat poultry house and litter with antifungal compounds and contaminated hatchery should be fumigated with formaldehyde or thiabendazole with dose rate- 120-360 g/m³.

References

- Aguilar RF, Redig PT (1995) Diagnosis and treatment of avian aspergillosis. *Current Veterinary Therapy XII*. Philadelphia, PA: WB Saunders, pp: 1294-1299.
- Kunkle RA (2003) Aspergillosis. In: *Diseases of Poultry*. Saif YM, Fadly AM, Glisson JR, Horner FJ, Clank BW (1997) *Poisons and toxins. Disease of poultry*. 10th edn
- McDougald LR, Nolan LK, et al. (eds.). Iowa State University Press, Ames, Iowa, USA, pp: 883-895
- Pattison M, McMullin P, Bradbury J, Alexander D, Jordan F. *Poultry disease*. 6th edn. Elsevier Limited, Saunders, UK 2008, 428-431.
- Pedon N, Boris SF (2003) *Zoonosis and communicable disease common to man and animals*. 3rd edn. Washington, DC, PAHO. pp: 305-310.
- Sultana S, Rashid SMH, Islam MN, Ali MH, Islam MM, et al. (2015) Pathological Investigation of Avian Aspergillosis in Commercial Broiler Chicken at Chittagong District. *International Journal of Innovation and Applied Studies* 10: 366-376
- Tell LA. Aspergillosis in mammals and birds: impact on Veterinary medicine. *Medical Mycology* 2005;43(Suppl 1):S71-73.

