

Molting In Layer Bird Due to Aflatoxin B₁

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Abstract

During the month of August 2014, from a controlled shed at PindiBhattian a poultry farmer having 12000 layer birds at his farm, reported to the Model Civil Veterinary Hospital, PindiBhattian, Hafizabad and informed that laying birds on his farm started molting and their egg production was drastically dropped with thin shells and misshaped. The farmer had also informed that he had changed the feed source twenty days before and purchased the feed from another manufacturer than previous. Molting started 15 days after the change of feed. The birds were maintained in cages in an environmental control sheds. On autopsy, ova were pedunculated and highly congested, livers were hemorrhagic and pale, large size of cysts attached to the Fallopian tubes and cysts contained clear to opaque watery fluid which was sterile. Feed of the farm was found normal for all the contents, negative for pesticides but feed as well as tissue contents of birds were positive for high levels of aflatoxin B₁. Forced molting in a flock is performed with complete withdrawal of feed for a certain time period, which may be from 7 to 15 days or incorporation of mineral like zinc, calcium and sodium in feed, but in this case the start of molting due to AFB₁ is unusual and is not reported in the literature before. In Pakistan during the months of monsoon humidity increases up to 85 to 90 percent which causes the production of Aflatoxins.

Keywords: Molting; Aflatoxin B₁; PindiBhattian; Layer

Brief History of Case

During the month of August 2014, from a controlled shed at PindiBhattiana poultry farmer having 12000 layer birds at his farm, reported to the Model Civil Veterinary Hospital, PindiBhattian, Hafizabad and informed that laying birds on his farm started molting and their egg production was drastically dropped with thin shells and misshaped. The farmer had also informed that he had changed the feed source twenty days before and purchased the feed from another manufacturer than previous. Molting started 15 days after the change of feed. The birds were maintained in cages in an environmental control sheds.

Clinical findings and laboratory Investigations

On autopsy in most of the birds, the ovarian follicles were found highly congested and regressed. The mature ova were pedunculated and highly congested. The livers of these birds were hemorrhagic and pale in color. The majority of these birds also showed a large size of cysts attached to the Fallopian tubes. These cysts contained clear to opaque watery fluid. Cystic fluid was tested for any bacterial infection. Feed on the farm was analyzed for proximate analysis. The Feed was also analyzed for mineral contents as well as for pesticide and aflatoxin levels.

Results and Discussions

In all birds cystic fluid was found sterile. Proximate analysis of the feed showed the values within normal range [1]. No pesticide residues were found in the feed. The TLC analysis of feed for aflatoxin contents showed high level of Aflatoxins B₁ (445 ppb per kg feed) [2]. Tissue analysis showed AFB₁ residues in livers of the birds.

Molting is a natural and physiological process in birds[3]. Each year bird sheds theirfeathers, and grow new ones. During this processes layer hen stop producing eggs. Normally a good egg layer molts once a year after completing their production cycle. In poultry husbandry, forced molting is also practiced to renew the production cycle. Forced molting in a flock is performed with complete withdrawal of feed for a certain time period, which may be from 7 to 15 days orincorporation of mineral like zinc, calcium and sodium in feed,but in this case the start of molting due to AFB₁ is unusual and is not reported in the literature before[4]. In Pakistan,presence of Aflatoxins in feed during rainy season is not unusual, when the environmental temperature is high. In Pakistan moon soon rainy season normally starts from the end of August to start in September and during the year 2014 season country faced heavy rains thanexpectation. The flood at PindiBhattian and JallalPurBhattian during September, 2014 was the biggest flood after the flood of September, 1973 during which the rual community of PindiBhattian faced 1100,000 cusic flood strength.

Conclusion

From the results it can be concluded confidently that Aflatoxin B₁ can induce forced molting in layer birds. However mode of action of AFB₁ toward molting need further investigations.

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