

A case report of Pigeon Pox-Histopathologic Diagnosis

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Avian pox is a well known disease in chickens, turkeys, pigeons, and canaries, and it has been identified in more than 60 wild bird species (Tripathy, 1991). Avian pox is a transmissible disease that is spread by several kinds of vectors: biting arthropods such as mosquitoes and mites, and aerosols generated from infected birds, or the ingestion of contaminated food or water. The disease has two forms: cutaneous and diphtheritic. Pigeon pox is a slowly developing disease resulting in morbidity and mortality among all age groups and sexes. The disease may be complicated with parasitism or poor condition of the flock. A case of cutaneous form of pigeon pox is presented.

Case History and Discussion

During March 2006, two local breed of pigeons were brought by local people to the dispensary with the history that they were found dead and lying along the roadside. On examination, they were found to be dehydrated and emaciated in nature. Several 0.5-1 cm diameter coalescing, round, yellowish, rough and firm masses were found at the eyelids, beak, and the mouth, and some were superficially ulcerated. Diphtheritic lesions were not found in birds. Histologic sections of skin containing the nodular lesions had cords and large clusters of markedly hypertrophic and hyperplastic epidermal stratified squamous epithelium, surrounded by dense fibroblastic stroma. Lesions consisted of swollen and pale keratinocytes with a foamy, vacuolated cytoplasm and single, round, dense eosinophilic intracytoplasmic viral inclusions (identified as Bollinger bodies). Inclusions distended the cell cytoplasm, producing cell necrosis. Some of them had clear, unstained, central rounded spaces. The superficial epidermis of the lesions was ulcerated with eosinophilic, amorphous keratinaceous crusts and necrosis.

On the basis of necropsy results, histopathologic features, and the presence of viral

intracytoplasmic inclusions in epidermal cells, a diagnosis of poxvirus infection was made. In some cases, the diagnosis of a pox virus infection can be suspected by external clinical examination and gross lesions (Heuschele, 1986), but it is necessary to confirm the disease in the cutaneous form by the presence of characteristic *Bollinger bodies* in epithelial cells of epidermis observed in histopathologic analysis, by electron microscopy for viral particles in epidermal cells, or by virus isolation (Heuschele, 1986 and Randall and Reece, 1996). In this bird, gross lesions were compatible with an avian pox diagnosis, and this fact was confirmed by the histopathologic analysis performed on bird. An outbreak of pigeon pox involving eight local golla breed of pigeons in rural areas of Bareilly district was reported. Deaths in a few cases was recorded which might have been aided by heavy parasite load (Rajendra Singh *et al.*, 1990).

Mortality and morbidity due to poxvirus infection may be very high in pigeons (Tripathy, 1991). Nevertheless, *Pox virus* is not fatal in all infected individuals, but it can reduce viability and predispose affected birds to predation, secondary infection, and accident (Reece, 1989). Thus *Pox virus* infection was an important, if not the direct, cause of death in bird.



Figure-1. An adult pigeon naturally infected with Pox virus showing nodular yellowish cutaneous lesions

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References

1. Heuschele, W.P. (1986). Infectious diseases. In Textbook of Zoo and wild animal medicine, 2nd edn., Fowler, M.E. W.B. Saunders Company, Philadelphia, Pennsylvania, p. 57.
2. Rajendra Singh, Kataria, J.M., Mullick, S.G., Mall, M.P. and Malhotra, D.P. (1990): Indian J. Comp. Microbiol. Immunol. Infect. Dis., 11(1); 46-47.
3. Randall, C.J., and Reece, R.L. (1996): Integumentary system. In Textbook of Color atlas of avian histopathology, Randall, C.J. and Reece, R.L. Mosby-Wolfe, London, UK, p. 43.
4. Reece, R.L. (1989): Avian pathogens: Their biology and methods of spread. In Textbook of Disease and threatened birds, Cooper, J. E. ICBP technical publication 10. International Council for Bird Preservation, Cambridge, UK, p. 1.
5. Tripathy, D.N. (1991): Pox. In Textbook of Diseases of poultry, Calnek, B.W. Iowa State University Press, Ames, Iowa, p. 583.

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Dog Flu May Have Been Active as Early as 1999

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TUESDAY, March 25 (HealthDay News) - Canine influenza was first identified in 2004, but it has been circulating in the racing greyhound population since at least 1999, a U.S. study reports.

The first recognized outbreak occurred in January 2004 at a dog race track in Florida. Since then, there have been a number of outbreaks at other tracks and at animal shelters, human societies, rescue groups, pet stores, boarding kennels and veterinary clinics.

In this study, a team led by Tara Anderson, of the University of Florida College of Veterinary Medicine, analyzed greyhound blood samples from an animal blood bank in California that uses retired greyhounds as blood donors. The blood samples were collected between 1999 and 2004.

The researchers found that 33 percent of the samples collected in 1999 tested positive for antibodies to the canine influenza virus and concluded that canine influenza was circulating in the racing greyhound population as early as 1999.

The H3N8 influenza virus that causes canine influenza is closely related to the virus that causes equine (horse) influenza. It's believed that the equine influenza virus mutated to produce the canine influenza virus.

Almost all dogs exposed to H3N8 become infected, and about 80 percent develop symptoms but most of the mild form associated with infection of the upper respiratory tract. But some dogs develop a more severe form of influenza that's accompanied by pneumonia. The death rate in these cases is 5 percent to 8 percent.

The research was presented March 18 at the International Conference on Emerging Infectious Diseases in Atlanta.

More information

The American Veterinary Medical Association has more about canine influenza <http://www.avma.org/public_health/influenza/canine_guidelines.asp>.