

Main viral diseases in birds

Hello! Are you aware of the intense relationship we have with birds? Let's review what viruses infect them and what effects have the viruses that infect them.

Viral infections are very important in poultry (meat broilers, layer hens, turkeys, ducks or ostriches) in which they produce significant economic losses in the production sector. But maybe you do not know that they also affect wild birds, both in natural environments (e.g.: forest birds, large raptors or birds used for hunting) as well as those in anthropized media, in habitual coexistence with humans (pigeons, sparrows, storks, swallows, etc.) and also domestic poultry, such as canaries or parakeets.

Among the diseases that affect birds there are some notifiable diseases included in the list of the World Organization for Animal Health, the OIE. And as noted, most of them are of viral origin. The viruses that originate them belong mainly to different RNA virus families, including both naked viruses and enveloped viruses and only one of the notifiable diseases is caused by a DNA virus.

Most infections listed by the OIE affect the respiratory tract of birds, with the exception of duck hepatitis, Newcastle disease, which affects B lymphocytes and the gastrointestinal tract, and infectious bursitis or Gumboro disease, which produces immunosuppression.

But taken as a whole, viral infections in birds can affect different organs, in many cases causing infections of systemic character with different types of clinical signs. Respiratory infections are common and there are several viruses that cause respiratory alterations and asphyxia as just described. But also many infections in birds affect the immune system causing immunosuppression which leads to states of apathy, depression or anorexia, such as infectious bursitis caused by a Birnavirus. Or affect the nervous system causing tremors, losses of balance, lack of coordination or paralysis, as in Newcastle disease, or with involvement of multiple organs and systems, as in Marek's disease. They can also affect the gastrointestinal tract. And there are also infections that alter the plumage, such as beak and feathers disease of the psittacines, caused by a Circovirus. And others like bird pox (caused by a Poxvirus) cause nodular and crusting lesions in areas without feathers.

The transmission of these viruses is performed by one or more of the following ways: the most common are the respiratory secretions, especially through aerosols, as is the case with infectious laryngotracheitis, or the faecal / oral route (through stools) as in the case of bird flu. Both routes facilitate the widespread dissemination of viruses in farm animals with high densities. In many cases, viruses can also spread through watering holes, feeders, farm implements or work teams. This is the case of Newcastle disease virus. The bite of arthropods, mainly mosquitoes, is the transmission route for some viral infections, many of them zoonoses, such as West Nile virus. Further, several viruses can be transmitted directly to the offspring, for example, picornaviruses which cause avian encephalomyelitis.

Some infections can affect humans, causing zoonotic diseases. They are mainly three RNA virus families involved. The viruses of the first two families are arboviruses, that is to say, transmitted by mosquito bites. The most common symptoms that they produce in humans are fever, myalgia, arthritis and neurological signs. But the most important is bird flu, since some types can cause serious human infections by the close and continuous contact with infected birds. We can see in the graph the outbreaks reported globally during the period 2013-2017.

The prevention of viral diseases in poultry commercial production centres is carried out at two main levels: Through a correct vaccination program and through appropriate biosecurity measures that try to avoid the entry of viruses. Biosecurity measures refer to the proper maintenance of farms, equipment and facilities as well as monitoring the sanitary and hygienic

conditions of the farms, including temperature, humidity, number of animals, etc. to avoid stress in birds which favours infections. The isolation of affected animals in the case of outbreaks and the quarantine of exposed animals, are fundamental measures to avoid the spread of the disease. Finally, it is also very important to avoid contact with wild birds.

Surely you had not thought that so many birds could be carriers of viruses around us!