Common Respiratory Diseases of Poultry

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There are many common and important diseases which can affect the respiratory system (air passages, lungs, air sacs) of poultry. People keep the birds for their use and generally include the chicken, turkey, duck, goose, quail, pheasant, pigeon, guinea fowl, pea fowl, ostrich, emu and rhea.

Fowl Pox/chicken pox/sore head/avian diphtheria: Most poultry-chickens, turkeys, pheasants, quail, ducks, psittacine, and ratites - of all ages are susceptible. There are two forms of fowl pox. The dry form is characterized by raised, wart-like lesions on unfeathered areas (head, legs, vent, etc.). The lesions heal in about 2 weeks. If the scab is removed before healing is complete, the surface beneath is raw and bleeding. Unthriftiness and retarded growth are typical symptoms of fowl pox. In laying hens, infection results in a transient decline in egg production. In the wet form there are canker-like lesions in the mouth, pharynx, larynx, and trachea. The wet form may cause respiratory distress by obstructing the upper air passages. Chickens may be affected with either or both forms of fowl pox at one time.

Fowl pox is transmitted by direct contact between infected and susceptible birds or by mosquitos. Virus-containing scabs also can be sloughed from affected birds and serve as a source of infection. The virus can enter the blood stream through the eye, skin wounds, or respiratory tract. Mosquitos become infected from feeding on birds with fowl pox in their blood stream. There is some evidence that the mosquito remains infective for life. Mosquitos are the primary reservoir and spreaders of fowl pox on poultry ranges. Several species of mosquito can transmit fowl pox. Often mosquitos winter-over in poultry houses so, outbreaks can occur during winter and early spring.

Newcastle Disease/ pneumoencephalitis (ND): The highly contagious and lethal form of Newcastle disease is known as viscerotropic (attacks the internal organs) velogenic Newcastle disease, VVND, exotic Newcastle disease, or Asiatic Newcastle disease. VVND is not present in the United States poultry industry at this time.

Newcastle disease affects all birds of all ages. Humans and other mammals are also susceptible to Newcastle. In such species, it causes a mild conjunctivitis. There are three forms of Newcastle disease, mildly pathogenic (lentogenic), moderately pathogenic (mesogenic) and highly pathogenic (velogenic). Newcastle disease is characterized by a sudden onset of clinical signs which include hoarse chirps (in chicks), watery discharge from nostrils, labored breathing (gasping), facial swelling, paralysis, trembling, and twisting of the neck (sign of central nervous system involvement). Mortality ranges from 10 to 80 percent depending on the pathogenicity. In adult laying birds, symptoms can include decreased feed and water consumption and a dramatic drop in egg production.

The Newcastle virus can be transmitted short distances by the airborne route or introduced on contaminated shoes, caretakers, feed deliverers, visitors, tires, dirty equipment, feed sacks, crates, and wild birds. Newcastle virus can be passed in the egg, but Newcastle-infected embryos die before hatching. In live birds, the virus is shed in body fluids, secretions, excreta, and breath.

Infectious Bronchitis/ (IB): Infectious bronchitis is a disease of chickens only. A similar disease occurs in bobwhite quail (quail bronchitis), but it is caused by a different virus. The severity of infectious bronchitis infection is influenced by the age and immune status of the flock, by environmental conditions, and by the presence of other diseases. Feed and water consumption declines. Affected chickens will be chirping, with a watery discharge from the eyes and nostrils, and labored breathing with some gasping in young chickens. Breathing noises are more noticeable at night while the birds rest. Egg production drops dramatically. Production will recover in 5 or 6 weeks, but at a lower rate. The infectious bronchitis virus infects many tissues of the body, including the reproductive tract. Eggshells

become rough and the egg white becomes watery. *Transmission:* Infectious bronchitis is a very contagious poultry disease. It is spread by air, feed bags, infected dead birds, infected houses, and rodents. The virus can be egg-transmitted, however, affected embryos usually will not hatch.

There is no specific treatment for infectious bronchitis. Antibiotics for 3-5 days may aid in combating secondary bacterial infections. Raise the room temperature 5°F for brooding-age chickens until symptoms subside. Baby chicks can be encouraged to eat by using a warm, moist mash.

Avian Influenza (AI) influenza: Avian influenza can occur in most, if not all, species of birds. Avian influenza is categorized as mild or highly pathogenic. The mild form produces listlessness, loss of appetite, respiratory distress, diarrhea, transient drops in egg production, and low mortality. The highly pathogenic form produces facial swelling, blue comb and wattles, and dehydration with respiratory distress. Dark red/ white spots develop in the legs and combs of chickens. There can be blood-tinged discharge from the nostrils. Mortality can range from low to near 100 percent. Sudden exertion adds to the total mortality. Egg production and hatchability decreases. There can be an increase in production of soft-shelled and shell-less eggs.

The avian influenza virus can remain viable for long periods of time at moderate temperatures and can live indefinitely in frozen material. As a result, the disease can be spread through improper disposal of infected carcasses and manure. Avian influenza can be spread by contaminated shoes, clothing, crates, and other equipment. Insects and rodents may mechanically carry the virus from infected to susceptible poultry.

Infectious Coryza/ roup: Chickens, pheasants, and guinea fowl. Common in game chicken flocks. Swelling around the face, foul smelling, thick, sticky discharge from the nostrils and eyes, labored breathing, and rales (rattles - an abnormal breathing sound) are common clinical signs. The eyelids are irritated and may stick together. The birds may have diarrhea and growing birds may become stunted. Mortality from coryza is usually low, but infections can decrease egg production and increase the incidence and/or severity of other diseases. Mortality can be as high as 50 percent, but is usually no more than 20 percent. The clinical disease can last from a few days to 2-3 months, depending on the virulence of the pathogen and the existence of other infections such as mycoplasmosis.

Coryza is primarily transmitted by direct bird-to-bird contact. This can be from infected birds brought into the flock as well as from birds which recover from the disease which remain carriers of the organism and may shed intermittently throughout their lives.. Birds risk exposure at poultry shows, bird swaps, and live-bird sales. Inapparent infected adult birds added into a flock are a common source for outbreaks. Within a flock, inhalation of airborne respiratory droplets, and contamination of feed and/ or water are common modes of spread.

Infectious Laryngotracheitis (ILT): Chickens and pheasants are affected by LT. Chickens 14 weeks and older are more susceptible than young chickens. Most LT outbreaks occur in mature hens. In recent years, LT has also caused significant respiratory problems in broilers greater than 3 weeks of age, especially during the cooler seasons of the year. This is believed to be due to unwanted spread of LT vaccines between poultry flocks. The clinical sign usually first noticed is watery eyes. Affected birds remain quiet because breathing is difficult. Coughing, sneezing, and shaking of the head to dislodge exudate plugs in the windpipe follow. Birds extend their head and neck to facilitate breathing (commonly referred to as “pump handle respiration”). Inhalation produces a wheezing and gurgling sound. Blood-tinged exudates and serum clots are expelled from the trachea of affected birds. Many birds die from asphyxiation due to a blockage of the trachea when the tracheal plug is freed.

ILT is spread by the respiratory route. LT is also spread from flock to flock by contaminated clothing, shoes, tires, etc. Birds that recover should be considered carriers for life. LT may be harbored in speciality poultry such as exhibition birds and game fowl.

Chlamydiosis/ ornithosis/ psittacosis/ parrot fever: The disease was called psittacosis or parrot fever when diagnosed in psittacine (curve-beaked) birds, and called ornithosis when diagnosed in all other birds or in humans. Currently, the term chlamydiosis is used to describe infections in any animal. Affected species include turkeys, pigeons, ducks, psittacine (curve-beaked) birds, captive and aviary birds, many other bird species, and other animals. Chickens are not commonly affected. Humans are susceptible, especially older and immunosuppressed individuals who are at a higher risk. Chlamydiosis in humans is an occupational disease of turkey growers, haulers, and processing workers in the live-bird areas and of workers in pet-bird aviaries although the incidence is rare. Clinical signs

in most birds include nasal-ocular discharge, conjunctivitis, sinusitis, diarrhea, weakness, loss of body weight, and a reduction in feed consumption. In turkeys there is also respiratory distress and loose yellow to greenish-yellow colored droppings. Chylamydiosis runs rather slowly through turkey flocks, with a maximum incidence of around 50%.

The primary means of transmission is through inhalation of fecal dust and respiratory tract secretions. It can also be transmitted on contaminated clothing and equipment. Recovered birds remain carriers and will continue to intermittently shed the infective agent for long periods after clinical signs have subsided. Environmental stress may provoke a reoccurrence of the disease.

Mycoplasma gallisepticum (MG), chronic respiratory disease (CRD), infectious sinusitis, mycoplasmosis: Chickens, turkeys, pigeons, ducks, peafowl and passerine birds. Clinical symptoms vary slightly between species. Infected adult chickens may show no outward signs if infection is uncomplicated. However, sticky, serous exudate from nostrils, foamy exudate in eyes, and swollen sinuses can occur, especially in broilers. The air sacs may become infected. Infected birds can develop respiratory rales and sneeze. Affected birds are often stunted and unthrifty.

There are two forms of this disease in the turkey. With the “upper form” the birds have watery eyes and nostrils, the infraorbitals (just below the eye) become swollen, and the exudate becomes caseous and firm. The birds have respiratory rales and show unthriftiness. With the “lower form”, infected turkeys develop airsacculitis. As with chickens, birds can show no outward signs if the infection is uncomplicated. Thus, the condition may go unnoticed until the birds are slaughtered and the typical legions are seen. Birds with airsacculitis are condemned.

MG in chicken embryos can cause dwarfing, airsacculitis, and death. MG can be spread to offspring through the egg. Most commercial breeding flocks, however, are MG-free. Introduction of infected replacement birds can introduce the disease to MG-negative flocks. MG can also be spread by using MG-contaminated equipment.

Mycoplasma synoviae (MS), infectious synovitis, synovitis, silent air sac: Chickens and turkey are commonly affected. Birds infected with the synovitis form show lameness, followed by lethargy, reluctance to move, swollen joints, stilted gait, loss of weight, and formation of breast blisters. Birds infected with the respiratory form exhibit respiratory distress. Greenish diarrhea is common in dying birds. Clinically, the disease in indistinguishable from MG.

MS is transmitted from infected breeder to progeny via the egg. Within a flock, MS is spread by direct contact with infected birds as well as through airborne particles over short distances.

Mycoplasma meleagridis (MM), N strain, H strain: MM affects turkeys of all ages, although poults are affected more severely than mature turkeys. Recently, MM has been shown to infect pigeon, quail and peafowl. A drop-off in production and hatchability can be expected in breeder flocks. There can be very high mortality in young poults. Unthriftiness, respiratory distress, stunting, crooked neck with deformity of cervical vertebrae, and leg deformation are common in young birds.

Egg transmission is low in the early breeding period, but rises as the the age of the flock increases. Infections can be introduced into a flock by contaminated equipment, shoes,

Aspergillosis/ brooder pneumonia/ mycotic pneumonia: When the source of the disease is the hatchery, the disease is called brooder pneumonia. In older birds, the disease is called aspergillosis. All birds (domestic poultry, pigeons, canary and zoo bird species), animals, humans, and plants are susceptible.

Aspergillosis occurs as an acute disease of young birds and a chronic disease in mature birds. Young birds have trouble breathing and gasp for air. Characteristically, there are no rales or respiratory sounds associated with aspergillosis. Feed consumption decreases. Occasionally there is paralysis or convulsions caused by the fungal toxin. Mortality in young birds averages 5-20 percent, but may be as high as 50 percent. Mature birds also have respiratory distress, reduced feed consumption, and may have a bluish and dark color of the skin (cyanosis). Nervous disorders, such as twisted necks, may occur in a few birds. Mortality in mature birds is usually less than 5 percent. Aspergillosis is caused by a fungus. The fungus grows well at room temperature and higher. All litter and nest materials (peat moss, peanut hulls, sawdust, peat, bark, straw) have been known to have been contaminated with aspergillus. Feed and water should be suspect when attempting to identify the source of contamination.