Common Diseases of Backyard Chickens

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The number of backyard chickens being kept as pets is increasing in the United States. The diseases and care of backyard flocks is different than that of commercial broilers, breeders or layers and the following is an overview of the most common diseases affecting backyard chickens.

Respiratory diseases

Infectious coryza

Infectious coryza affects primarily chickens (it can affect pheasants and guinea fowl as well). The causative agent is Haemophilus paragallinarium, a Gram negative rod. The incubation period is 1-3 days and the course of the disease is approximately 4-12 weeks. Clinical signs include upper respiratory signs and swelling of the face with foul smelling (hallmark) and sticky nasal and ocular discharge, dyspnea and rales. Clinical signs also include decreased egg production. Birds that recover are lifetime carriers. Transmission is through direct or indirect contact. Mortality is about 20-50%. Treatment consists of giving antibiotics such as sulfa drugs, erythromycin or tetracycline, but since affected birds are lifetime carriers, the only way to control the infection is through depopulation and leaving the premises vacant for at least 30, preferably 60 days after cleaning and disinfecting before repopulating. Avoid mixing flocks or mixing different ages and sources of birds. There is a vaccine available, but it is seldom used in backyard flocks.

Infectious bronchitis virus (IBV)

Infectious Bronchitis virus, the etiologic agent is a coronavirus, affects only chickens and has a worldwide distribution. Younger, immunosuppressed chickens show worse clinical signs than older immunocompetant chickens. Clinical signs include upper respiratory signs including sneezing, gasping, rales, and nasal discharge. Young are affected worse than adults showing gasping and labored breathing. In an affected flock of chicks, all birds will typically develop clinical sings within 36-48 hours and the clinical disease will typically last approximately 4 days (longer if secondary infections develop). Older chickens show a decrease in egg production for about 10-14 days. Infectious Bronchitis Virus can also affect egg quality resulting in irregular and roughened eggshells with watery albumin and decreased egg production. Also newer strains of the virus may affect the kidneys. Tests include virus neutralization, hemagglutination inhibition or ELISA. The best method to control is to disinfect, repopulate and use live vaccine. This disease is highly contagious that easily spreads via airborne particulate matter and via fomites. There is no treatment, but antibiotics can be given to prevent secondary bacterial infection, especially with Infectious Coryza. The virus is easily destroyed by disinfectants, sunlight and heat. Increasing the environmental brooder temperature often helps chicks recover. There is a vaccine available, but it is not used in backyard flocks since there are numerous serotypes.

Mycoplasmosis

There are three different species of Mycoplasma that can infect chickens. Mycoplasma gallisepticum causes respiratory disease in chickens, but an infectious sinusitis in turkeys. Mycoplasma meleagridis causes an air sacculitis and skeletal deformities in turkeys. Mycoplasma synoviae causes air sacculitis and synovitis /lameness in chickens. Mycoplasma gallisepticum (MG) is seen in backyard flocks and is of concern because it can easily spread to nearby commercial flocks and cause economic devastation for that commercial flock. Most commercial flocks are MG free. To participate in the National Poultry Improvement Plan (NPIP) a flock needs to be MG free. Transmission is through fomites. Clinical signs of MG in chickens include an upper respiratory disease with swelling of the infraorbital diverticulum of the infraorbital sinus with caseated pus. The best prevention measure for this disease is to depopulate the flock and repopulate with new birds. Medical treatment can be attempted with antibiotics (spectinomycin, lincomycin, erythromycin, or tylosin), but infected birds remain carriers for life.

Infectious laryngotracheitis (ILT)

Infectious laryngotracheitis affects only chickens (and pheasants). The causative agent is a herpesvirus. Chickens older than 14 weeks are more susceptible than younger chickens, so the disease is usually seen in mature chickens. There is a mild form in the United States that is associated with decreased conjunctivitis, nasal discharge, swollen infraorbital sinus and decreased egg production. Birds with severe infection may have moist respiratory sounds on examination. Shaking of the head and flinging necrohemorrhagic material from the trachea is a hallmark of this disease including an inspiratory dyspnea and death. At gross necropsy a mucoid to necrohemorrhagic tracheitis is present. Diagnosis is confirmed via virus isolation, ELISA, or Indirect fluorescent antibody test. Prevention is through the use of a live vaccine. The disease can be spread by fomites. It is important for owners who have losses to properly dispose of the deceased birds to prevent spread (incinerate). Antibiotics can be utilized for treatment, but in terms of flock health it is suggested to depopulate and then vaccinate the new birds.

Heart failure

Right- sided cardiac failure is often diagnosed in chickens, especially the commercial breeds like the white leghorn. The disease is most likely due to genetics and possibly diet. Chickens with heart disease can present with increased respiratory effort (tail bob, or exercise intolerance, open mouth breathing), sometimes accompanied with coelomic enlargement due to fluid (ascites). Radiography will aid in diagnosis with cardiomegaly. An echocardiogram will show right-sided heart enlargement with decreased contractility. Treatment options include pimobendan or digoxin, furosemide, enalopril and spironolactone for its potassium sparing effects. An electrocardiograpm (ECG) in birds normally shows a negative 90-degree heart axis resulting in a negative pointing QRS complex.

Musculoskeletal diseases

Marek's disease

Marek's disease affects only chickens. Causative agent is a herpervirus. Clinical signs are generally seen in birds that are 12-20 weeks of age, but can be seen as young as 3 weeks of age. This highly contagious disease is associated with a high morbidity and low mortality. The incubation period is typically 4-12 weeks, clinical signs are seen in 10 -12 weeks chickens. Transmission is via virus shed in the feathers, skin, secretions and droppings. The virus is very hardy in the environment and can survive indefinitely (feathers and dander in poultry houses and yards). Clinical signs of Marek's disease include an asymmetrical paralysis since the virus affects the "sciatic" (technically the ischiatic) nerve. Typical clinical sign is a bird that cannot stand because one leg is pointed forward while the other leg is pointed backward. Another common clinical sign of the ocular form is "gray eye" where the color of the iris gradually changes from brown to gray and the pupil becomes irregularly shaped. There is no treatment. Prevention for Marek's disease is by administering a polyvalent vaccine in the egg or after hatching at 1 day of age. There is no vaccine that is 100% protective and vaccine administration may not be completely protective in day old chicks. The vaccine given at the hatchery is typically a spray on vaccine as the chicks go by on the conveyor belt. A differential for Marek's disease is lymphoid leukosis based on age of clinical signs, and gross and histopathological lesions (ischiatic nerve enlargement).

Lymphoid leukosis virus type C - oncovirus

Lymphoid leukosis is an infectious disease, but is progresses to neoplasia and presents as such. This disease affects only chickens. Clinical signs usually occur in older chickens at approximately 24 to 40 weeks of age. The clinical signs are non-specific and include anorexia, weakness, pale comb and distended abdomen. At gross necropsy grey to white tumors are observed in the liver and other organs. The clinical signs are sometimes difficult to differentiate from those of Marek's disease, but lymphoid leucosis does not occur before 14 weeks of age. Prevention of lymphoid leukosis is to test and cull positive breeder birds.

Fractures

Traumatic fractures and orthopedic injuries are fairly common in chickens. Medical and surgical treatment is the same for the chicken as in other birds. Chickens are heavy bodied birds and therefore they easily develop ulcerative pododermatitis in the contralateral healthy limb when there is lameness in the other limb for any reason. The use of a modified external fixator with tie in cross pins is often ideal for fracture repair. Fractures of the distal limb if closed and with minimal displacement, may be able to be managed with external coaptation. Physical therapy techniques can be used in chickens to aid in return to full function. Therapeutic Class IV laser treatment may also be useful in the management of pain and to promote wound healing.

Ulcerative pododermatitis (bumblefoot)

Ulcerative pododermatitis tends to occur if the chicken is overweight, on a roughened surface, or if one leg and foot bears more of the body weight than the other, or a combination of all these factors. There are varying grades of ulcerative pododermatitis from mild with hyperemia of the skin, to severe with osteomyelitis of underlying bone. A radiograph is the best method to determine if there is underlying osteomyelitis, a condition that requires long-term antibiotic therapy and probably debridement of necrotic tissue. Soaking the foot will greatly soften the tissue and ease surgery. Surgery should be performed under general anesthesia with administration of a pain reliever such as butorphanol since this is a painful procedure. Culture and prescribe appropriate antibiotics. The substrate should be made as soft as possible and kept clean. Underlying lameness should be corrected. Therapeutic Class IV laser treatment may also be useful in the management of pain and to promote wound healing.

Gastrointestinal system

Coccidiosis

There are many species (9 in chickens, 7 in turkeys at least 4 in quail) of coccidian. They are host specific and not zoonotic. A flock may develop resistance to one species only to be infected with another species. Cecal coccidiosis (Eimeria tenella) is worse in that it typical causes bloody droppings and is associated with higher mortality, whereas intestinal coccidiosis (E. acervulina and E. necatrix) is typically more chronic in nature and is associated with a lower mortality. The clinical signs of coccidiosis are severe in young (4-16 weeks of age) chickens by having bloody diarrhea, pale combs, lethargy, tendency to huddle, partial anorexia, weight loss, dehydration, and death. Common clinical signs of coccidiosis are diarrhea, and variable levels of mortality. As chickens get older they become more resistant and show little to no clinical signs, but can act as carriers to later expose young chicks. Transmission is through direct or indirect contact with droppings from infected birds (fomites, free-flying birds, insects and rodents). The oocysts shed in feces

are not immediately infective; they have to first go through a maturation phase (sporulation), which can take as little as 1-3 days in warm, damp litter. Good hygiene and management is important for the control of coccidiosis in a flock.

Wet litter, poor sanitation, poor nutrition, and concurrent immunosuppressive diseases are the most common factors for a coccidiosis outbreak. Treatment is with a coccidiostat such as amprolium or sulfamethazine. The illness can be prevented by feeding medicated feed between the ages of 0 and 16 weeks. There is a coccidia vaccine available for use in 1-3 days old chicks, but it is only useful in certain poultry operations, since it uses live organisms and re- ingestion at 4-25 days is necessary as a booster.

Reproductive disease

Female chickens as they age may experience reproductive problems related to egg production. Symptoms of reproductive disease can include decreased egg production, abnormal egg production (soft shelled or malformed eggs), lack of egg production, or egg binding (an emergency). Most hens have optimal egg production in the first year of their life. It is common for egg production to decreased slightly in the second year and further in subsequent years.

Optimal nutrition, especially calcium level, is required for good egg production and reproductive health. If a bird becomes unable to pass an egg (egg binding) it may require surgical care to remove the retained egg(s). If the bird it not intended for breeding a salpingohysterectomy is recommended at the time of the egg removal surgery. Ectopic eggs are fairly common in chickens and are often found at the time of surgery adhered to the internal organs. If the eggs are sterile there may not be infection present but the presence of the retained egg material usually causes an inflammatory response resulting in coelomic fluid accumulation and coelomic distention.

References

Diseases of Poultry, David E. Swayne, Editor, Wiley-Blackwell; 13 edition, October 2014.
Clinical Avian Medicine, Volume II, Management of Galliformes by Gary D. Butcher, BS, DVM, PhD, Dipl ACPV.
Common Diseases of Poultry. Greenacre CB . Proc AVMA Convention, Denver, CO, July, 2014.
Chicken Health for Dummies, Julie Gauthier and Ludlow, January 2013.
The Chicken Health Handbook, Gail Damerow and Jeanne Smith DVM, StoreyCommunications, Inc., January 1994.