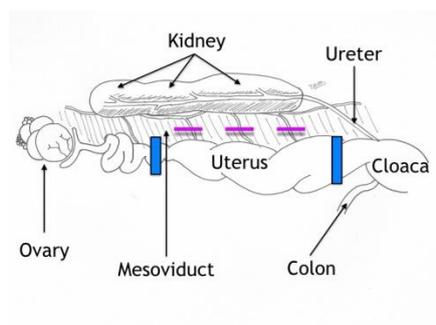


Backyard Poultry

Mini Series

Session Two: Approach to Clinical Signs and Condition I

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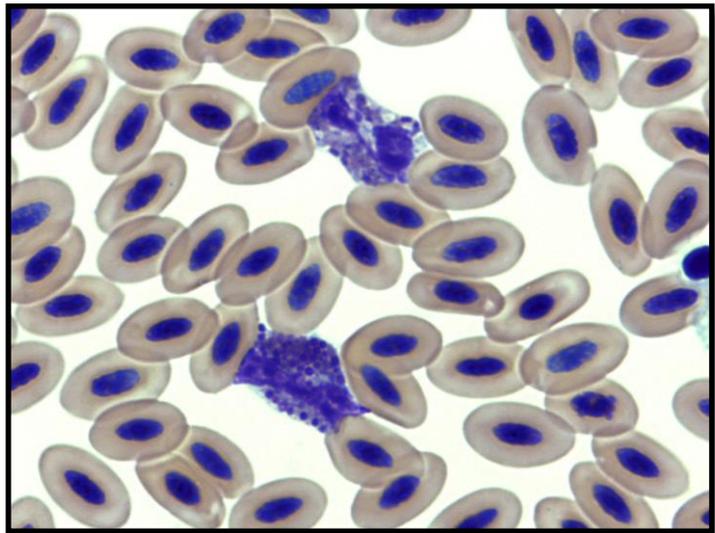


BACKYARD POULTRY. SESSION 2

Emergency situation: lethargic chicken

A common emergency situation in clinical practice is ex-battery hens presenting with lethargy, semiclosed eyes and anorexia. Many times, the owner had noticed that egg laying stopped in the previous weeks or months. These hens are usually affected by a septicaemia from a reproductive origin, and treatment may need to be quick in order to save the life of the patient. First of all, the bird should be stabilised with warmth, fluids through an IV/IO catheter and IV antibiotics. Ringer's and Hartmann's are hypotonic in birds, and 0.9% saline is recommended, at rates of 5 mL/kg/h or 50-100 mL/kg/day. Enrofloxacin is an adequate option of IV antibiotic, as it is available in many practices and is effective against most bacteria affecting chickens: 10-15 mg/kg q12h. Other antibiotics such as piperacillin (75-100 mg/kg q4-8h) and ceftazidime (75-100 mg/kg q6-8h) can also be used. If the patient is so severely debilitated that it could die with minimal handling, then it is recommended to place it in a warm, oxygen-rich and quiet environment and give it an IM injection of antibiotics; then wait and work in steps as the patient improves. Improvement can be seen with this therapy in 12-24 hours, but recurrences are only avoided if the reproductive problem is resolved.

Blood smear from a lethargic chicken showing two toxic heterophils. This is indicative of a septicaemic process

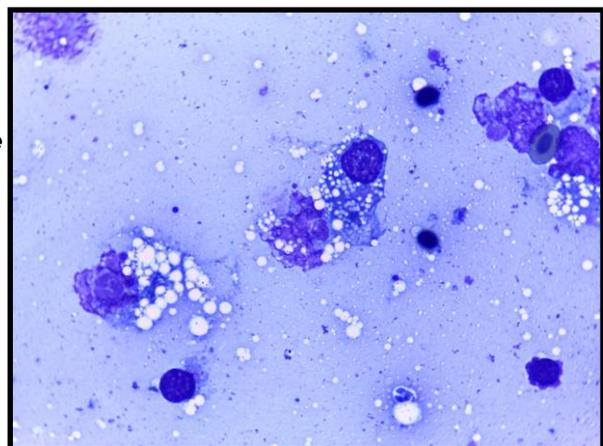


Reproductive problems

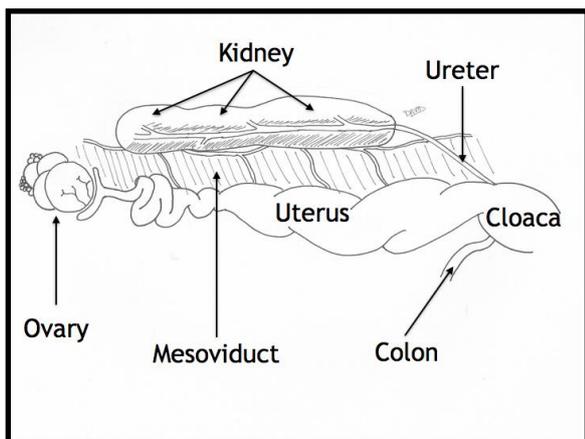
Ex-battery hens are particularly prone to reproductive disease, due to old age and increased reproductive activity (egg laying).

Egg yolk peritonitis happens when the yolk is released into the coelomic cavity instead of entering the oviduct. This produces an inflammatory reaction of the coelom with or without bacterial infection. Depending on the amount of yolk released, the condition can range from mild symptomatology (generating some adhesions on the coelomic organs and reabsorbing most of the yolk) to severe disease and death. When there is some fluid in the coelomic cavity, the condition can be easily diagnosed with a cytology of the fine-needle aspirate. Treatment of this condition is supportive, allowing the bird to reabsorb the contents from the coelomic cavity. Prevention is by avoiding reproductive activity (medically or surgically).

Fine-needle aspirate of a chicken with coelomic effusion. Vacuoles found free in the liquid and inside monocytes correspond to yolk contents and are diagnostic for egg yolk peritonitis



Medical treatment to stop reproductive activity can be done with the GnRH agonist deslorelin (one 4.7 mg implant SC every 3-4 months) or with cabergoline (10-20 µg/day PO). Surgical treatment consists of removing part of the oviduct, but medical treatment for life is also recommended in these patients.



Anatomy of the reproductive system of a hen

Egg binding can be caused by excessively large or irregular eggs, oviduct impaction due to infection, hypocalcaemia, obesity or trauma to the reproductive tract from pecking. Clinical signs include cessation of egg laying, abdominal and cloacal effort, lameness due to compression of the egg to the nerves of the pelvis, and sometimes the egg can be seen through the cloaca. Treatment consists of correction of the underlying cause, provision of supplemental calcium and removing the egg, either with lubrication or collapsing it after making a hole with a needle. Surgery may be required in some cases; it is indicated to remove part of the uterus at the same time to avoid recurrence.

Hypocalcaemia happens as a consequence of both hen's fatigue and lack of calcium in the diet. Basically, the amount of calcium intake does not support the level of egg production, and this can be caused by feeding the wrong food, feeding food that has been wrongly formulated or having chickens not exposed to UV light. Dystocia, leg weakness and even death can be the consequence of hypocalcaemia.

Sour crop is the consequence of crop stasis; the crop contents start to rot and produce a pungent sour smell. Sour crop can make the animal ill, but the other way around is also true and any illness can induce crop stasis and sour crop. Some crop conditions can affect the bird independently of sour crop or can predispose to sour crop: candidiasis, systemic disease, crop impaction and heavy metal toxicity. Treatment of sour crop should consist of emptying the crop, analysing its contents and treating appropriately: antibiotics for bacterial septicaemia, nystatin for candidiasis, flubendazole for crop capillariasis, Ca EDTA for heavy metal toxicity, etc. After emptying the crop, metoclopramide (0.3-2 mg/kg PO or IM q8-24h) and easily digestible food may be considered until the underlying cause is resolved.

Lameness can be seen as a consequence of leg problems (pododermatitis, arthritis) or as a consequence of problems outside the legs (dystocia, renomegaly). Lameness in backyard poultry can be caused by reproductive disease, bumblefoot (pododermatitis), arthritis, fractures and trauma, skeletal malformations, parasitism, kidney disease and Marek's disease. Bumblefoot is particularly common in large breeds of waterfowl with little access to a swimming pool and with a floor made of concrete. Pododermatitis can also occur as a result of damage in the contralateral leg and weight bearing compensation. Radiographs are always indicated in cases of bumblefoot or arthritis to evaluate bone involvement. Surgery in severe cases of bumblefoot should be carefully considered; euthanasia may be a better option. For milder cases, treatment options include correction of underlying cause, providing softer substrates, bathing feet in iodine solutions and using DMSO, antibiotics or NSAIDs when needed. Mycoplasmosis is not common when birds originate from intensive farms; it can produce arthritis (without bone involvement) and respiratory problems, and treatment is usually done with tylosine when eggs are consumed. Fractures may happen when birds share their space with predators, horses or dogs. Heavy endoparasitic loads have been associated with lameness in ducks. Kidney disease can produce lameness when renomegaly compresses the nerves supplying the leg at the level of the kidney fossa; alternatively, kidney failure can induce articular gout, which can also end up producing lameness.



Crop candidiasis (left) is a condition commonly considered secondary to immune suppression and other pathologies of the crop such as stasis. When Candida yeasts develop pseudohyphae (right) the tissues have been invaded and systemic antifungals (fluconazole 10 mg/kg PO q24h) are indicated

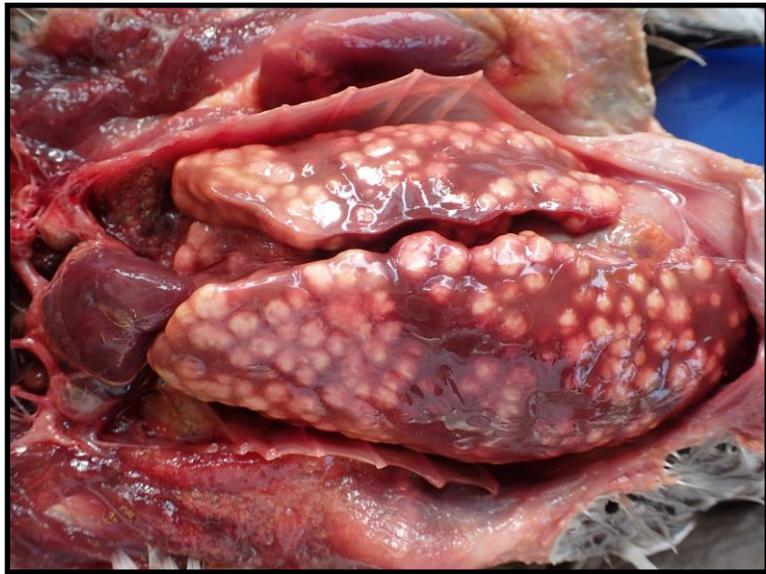
Severe bumblefoot in a duck after being placed in a hard substrate



Marek's disease is a common and important disease in chickens. Ex-battery hens and other chickens that have been vaccinated are less likely to suffer the disease. It is caused by a herpesvirus and produces a variety of clinical signs including paralysis, lymphoma and neurological signs. Tumors can affect the nerves, the internal organs, the skin and the iris. Clinical disease is most commonly seen in chickens 10-20 weeks old. The disease spreads rapidly in an unvaccinated flock and the virus is extremely resistant in the environment. Diagnosis is made by PCR, histopathology or viral isolation, and AHVLA laboratories should be considered for the diagnosis of common poultry diseases. There is no treatment for Marek's and either culling or allowing the animals to live without introduction of new animals can be considered. Even considering that vaccination is recommended to control this and other diseases, vaccination is not usually recommended for backyard poultry, due to the small number of birds and the fact that vaccines are commonly supplied in vials of 1000 doses and should be applied on day 1 of age. In fact, ex-battery hens and other poultry coming from intensive farms may already be vaccinated.

Avian tuberculosis is a concern in collections of exotic waterfowl, but it is not common in chickens. *Mycobacterium avium* produces a chronic and granulomatous disease that can affect any organ, mainly liver, lungs and spleen. Predisposing factors are to be housed with positive animals and live in enclosures that have had avian tuberculosis in the past. Clinical signs depend on the organ affected, but emaciation is common in most cases. The disease is commonly diagnosed post-mortem and treatment is not indicated. Bacteria survive for years in the environment, but can be killed with UV light and other disinfectants. As older birds are most commonly affected, avoid entering adult birds in a collection with a negative status, or check those birds with haematology, protein electrophoresis and antigen/antibody detection before introduction.

Typical post-mortem image of a duck affected by avian mycobacteriosis (or avian tuberculosis). Note the formation of multiple granulomas in the liver



Liver rupture is far more common in waterfowl than in any other group of birds. When the liver becomes friable due to lipidosis, tuberculosis or hepatomegaly, any small trauma can cause the animal to bleed to death from a liver rupture.

A number of **toxins** can affect backyard poultry. Ionophore coccidiostats such as monensyn, lasalocid and salinomycin cause serious side effects in turkeys and guinea fowl. Excess of ammonia in the poultry house causes conjunctivitis and predisposes the bird to other respiratory conditions. Mycotoxins can grow on grain feed, and grains do not need to look abnormal for mycotoxins to be produced. Chickens are relatively resistant to warfarin, but are more sensitive to other kinds of rodenticides. Metaldehyde is commonly used to kill snails and slugs, but it is extremely toxic in all kind of backyard poultry. Salt toxicity can occur when road salt is ingested or when the commercial feed is wrongly formulated. Heavy metal poisoning can be caused by ingestion of zinc or lead. Zinc can be found in any galvanised object such as wires, bird cages, coins or nails. Lead toxicity is more common in wild or free-ranging waterfowl with access to lead pellets from hunting and lead weights from fishing. In addition, waterfowl are among the most susceptible avian species to lead toxicity and levels as low as 0.1 ppm in blood can produce clinical signs. Clinical signs of lead poisoning include ataxia, inability to fly, emaciation, bright green faeces and death. Gross findings on post-mortem examination include distended gallbladder and GI flaccid paralysis and impaction. Treatment for both zinc and lead toxicity involves stabilisation, the use of chelants (Ca EDTA 35 mg/kg IM or SC) and GI flushing or endoscopy. Proventriculotomy or ventriculotomy to remove lead or zinc particles is usually contraindicated.

Radiography of a swan with fishing gear in the ventriculus

