Reproductive disorders of backyard poultry

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Reproductive disease is common in birds, but appears overrepresented in backyard poultry, especially among female birds. This is most likely the result of the genetic selection pressures that have been in place for centuries, to maximise egg production for human consumption.

The ancestors of domestic chickens and ducks have defined breeding seasons during which they lay 8-12 eggs per clutch, which may be replaced if lost, and thus will generally produce a maximum of 24 eggs per year. Following the breeding season, the oviduct involutes. Modern commercial chickens and ducks can lay all year round (although moulting and winter months may reduce the rate). The constant ovulation and laying activity results in a high incidence of inflammatory, neoplastic and infectious diseases of their reproductive tracts.

DISORDERS OF THE FEMALE REPRODUCTIVE TRACT

SALPINGITIS

Inflammation of the oviduct is the most common cause of mortality in commercial poultry and is associated with a wide variety of infectious agents.

Predisposing factors include age, malnutrition, obesity, high rates of egg laying or a history of reproductive disorders. Salpingitis may be septic or non-septic. *Escherichia coli* is the most common infectious cause; however, other bacteria have also been implicated. Viral infections like infectious bronchitis virus and Newcastle disease virus may damage the mucosa, allowing invasion of secondary bacterial pathogens, leading to salpingitis. Salpingitis can also be secondary to diseases of the ovary, such as cystic ovarian disease, oophoritis and neoplasia.

Salpingitis commonly leads to an impacted oviduct. A lack of eggs often just means none laid, whilst the ovary may continue ovulating every 25 hours, resulting in an impacted oviduct, which is distended with a mass of caseated material or with misshapen soft-shelled eggs. The oviduct will not be functioning, so shells will not be formed, and the oviduct will not be contracting to expel the eggs.

Yolk coelomitis is another common sequela. As the ovary continues to ovulate and, due to the lack of normal peristaltic movements of the oviduct, some of the ova may end up in the coelomic cavity, leading to a yolk coelomitis when they break up. Clinical signs of salpingitis are often non-specific and include weight loss, fluffed plumage, anorexia and lethargy. There may also be a flaccid vent with cloacal discharge, which may resemble scrambled egg. Malformed eggs may be passed.

Non-septic salpingitis will generally result in vague signs of illness and can be a chronic condition, whereas birds with septic salpingitis are usually clinically very ill. Cytology of any discharge may help to differentiate between septic and non-septic salpingitis.

Treatment for salpingitis depends on the underlying cause. Anti-inflammatories are a very important part of the treatment, as inflammation is a major component of the pathology. Meloxicam (1mg/kg) is most commonly used.

Septic salpingitis will require antibiotics. If there is significant coelomic fluid present, draining as much fluid as possible will provide relief to the bird. Supportive care is equally important (fluids, thermal support and nutrition). Deslorelin (GnRH agonist) is used to try to prevent further ovulation. Some cases require surgical intervention.

YOLK COELOMITIS

Yolk coelomitis occurs when the infundibulum fails to engulf the ovum, when reverse peristalsis stops the egg from entering the oviduct, or if there is an oviduct rupture due to salpingitis.

Any disease of the ovary can also lead to yolk coelomitis. The tissues surrounding the ovary help funnel ovulated ova into the infundibulum.

Pathology of these tissues will predispose to ectopic ovulations, as will any adhesions affecting the infundibulum.

Once in the coelomic cavity, the ovum breaks up. Yolk is a very irritating substance to the serosal surfaces, so the result is a sterile yolk coelomitis. It is a very common condition and, in most cases, is self-resolving with supportive treatment. Clinical signs seen in mild cases are non-specific. If the condition is recurring with several ectopic ovulations, then more clinical signs will be seen as it develops into a potentially fatal condition.

Clinical signs can include anorexia, depression, abdominal swelling, ascites and dyspnoea. There is usually a cessation of egg laying. Deformed or soft-shelled eggs may sometimes be passed if the condition is secondary to salpingitis. Birds with severe ascites are seen to stand with a wide-based penguin-like stance. Abdominocentesis will give significant relief to the bird and will yield potentially diagnostic samples.

NSAIDs are the most important treatment in mild cases. Septic yolk coelomitis will require antibiotics, ideally based on culture and sensitivity. Draining ascitic fluid will provide immediate relief. Preventing further ovulations with deslorelin is important.

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EGG BINDING

Failure of an egg to pass from the level of the uterus/shell gland is most commonly due to salpingitis.

Strictures of the vent or other mechanical obstructions (granuloma/neoplasia) can also cause dystocia. A very large or misshapen egg can also occasionally cause dystocia. Nutritional insufficiencies (vit D3, Calcium, Phosphorus) and pelvic/spinal trauma are also possible causes of egg binding.

Hens with dystocia/egg binding will usually have been found in the nest box. They may have a wide stance and be seen to have episodes of tenesmus.

In cases where the cause is nutritional, the egg may often pass if the hen is provided with supplemental heat, subcutaneous calcium gluconate 10% (50mg/kg) and oral/IV fluids. The tissues surrounding the egg should be lubricated, and then applying gentle pressure may expel the egg. Analgesia is often required.

If oviposition has not occurred within 6 hours of treatment, then a further evaluation under GA is indicated. With the bird in dorsal recumbency and with the benefits of the now relaxed musculature, the cloaca is lubricated and examined. Gentle pressure is applied, directing the egg caudoventrally towards the vent until it is expelled. Cotton buds can be used to gently ease back the mucosa.

In the case where the egg is visible but reasonable pressure has not resulted in oviposition, ovocentesis (aspiration of the egg contents using a 20ml syringe and large bore needle) can be performed. The needle is inserted and the contents aspirated with gentle pressure, simultaneously applied to the egg externally. Due to the presence of the inner shell membrane, the egg will collapse into a cigar shape, which can be removed with gentle traction using haemostats or tissue forceps. If the above attempts are still unsuccessful, surgical intervention is indicated.

CLOACAL/OVIDUCT PROLAPSE

Prolapse of the cloaca and/or oviduct can occur secondary to a variety of disease states. Exposed tissues are susceptible to trauma, devitalization and infection. Cannibalistic behaviour by other flock members results in significant damage, and in severe cases, euthanasia should be considered on humane grounds. However, acute cloacal prolapses carry a fair prognosis with prompt management. The procedure is similar to that of small animals. A purse string suture is contraindicated in birds, as the vent is a horizontal slit opening in a dorsoventral direction (rather than a circular opening).

SOFT-SHELLED EGGS

Soft-shelled or misshapen eggs can occur as a result of dietary calcium deficiency. Infections involving the shell gland can also cause misshapen eggs, with infectious bronchitis being a common cause.

EGG DROP SYNDROME

EDS is caused by an adenovirus and is characterised by an initial loss of shell pigmentation followed by the production of soft-shelled and shell-less eggs in otherwise apparently healthy birds.

There is no decrease in egg numbers; however, some eggs may be eaten, giving the impression of a fall in production. The natural hosts for the EDS virus are ducks and geese, which are asymptomatic carriers. Chickens of all ages and breeds are susceptible. EDS can be distinguished from Newcastle disease and avian influenza by the absence of clinical illness and from infectious bronchitis by the absence of ridges and misshapen eggs. The haemagglutination inhibition test using red blood cells is the preferred diagnostic test in unvaccinated flocks. Viral spread is slow, so it is important to only test birds producing affected eggs. A vaccine is available and should be given before the point of lay.

EGG EATING

This vice is where birds break and eat either their own or the eggs of their flock mates. It may develop because of poorly designed nest boxes where eggs are prone to breakages, or due to suboptimal nutrition, or boredom due to a lack of foraging opportunities. Once this habit forms, it can be difficult to break. A possible solution is to place golf balls in the coop as non-productive decoys.

NEOPLASIA

Uterine adenocarcinomas are the most commonly encountered tumour of the reproductive tract. Neoplastic cells are shed from the tumours in the oviduct into the abdominal cavity. They implant on the ovary, pancreas, and other viscera and produce multiple hard yellow nodules. They may block lymph return and result in ascites.

OVIDUCTAL CYSTIC HYPERPLASIA

In such cases, the entire oviduct may be dilated with a white or brown mucoid fluid, creamy masses and secondary cysts. The ovary in affected birds may also have cystic changes, suggesting an endocrine abnormality. Progressive abdominal distention, ascites and subsequent respiratory distress are the most common clinical changes. Abdominocentesis and GnRH agonist therapy may be useful in the short term, but salpingohysterectomy is necessary for long-term management.

DISORDERS OF THE MALE REPRODUCTIVE TRACT

INFERTILITY

Infertility in the cockerel can be due to senility, obesity, anatomical or chromosomal abnormalities or disease. Some breeds have such voluminous feathers that copulation is impossible, and trimming or removing feathers around the vent may be indicated. Vent feathers may also become matted with faeces/mud, preventing copulation. Multiple cockerels may also compete and prevent access to the hens.

ORCHITIS

Infection of the testes can arise following cloacitis, renal disease or via haematogenous spread. The most commonly found bacteria are *E. coli*, *Salmonella* and *Pasteurella*.

PROLAPSED PHALLUS

This is only a problem in mature drakes and is believed to be traumatic. Medical management involves gentle cleansing and reduction of prolapsed tissue. Analgesics and, in some cases, antibiotics are indicated. Often stay sutures are required to keep the phallus in place, but in some cases, an amputation will be required. Implantation with deslorelin may be an adjunct therapy in such cases to temporarily reduce libido.

NEOPLASIA

Mareks disease has been known to induce lymphoid tumours of the testes. Testicular teratomas and Sertoli cell tumours have also been described.

REFERENCES:

Mia M.Z. 2025. *Personal communication.*

Poland G., Raftery A. 2019. *Backyard poultry medicine and surgery.*

Smith *et al.* 2009. *Basic poultry production and management. UP course notes.*

QUESTION 1

Which of the following is not a predisposing factor for Salpingitis?

a. Obesity
b. High rates of egg laying
c. Moulting
d. Malnutrition
e. Age

QUESTION 2

Which is the most common infectious cause of salpingitis?

a. EDS
b. *E. coli*
c. Infectious bronchitis
d. Newcastle disease
e. *Mycoplasma*

QUESTION 3

Which is the most commonly used anti-inflammatory drug for salpingitis?

a. Carprofen
b. Flunixin
c. Meloxicam
d. Firocoxib
e. Robenacoxib

QUESTION 4

Deslorelin is a contraceptive GnRH implant causing a decreased production of FSH and LH and as a result, ovulation is prevented. In which of the following conditions could deslorelin be of use?

a. Yolk coelomitis
b. Salpingitis
c. Oviduct prolapse
d. Oviductal cystic hyperplasia
e. All of the above

QUESTION 5

Which of the following is not a cause of misshapen eggs?

a. Infectious bronchitis
b. Dietary calcium deficiency
c. Infections of the shell gland
d. EDS
e. Salpingitis

QUESTION 6

A client brings in her Araucana hen whose egg colour has suddenly changed from blue to white. Clinical examination of the bird is normal. What is the aetiological agent for this condition?

a. Adenovirus
b. Reovirus
c. Avian influenza virus
d. Newcastle disease virus
e. *E. coli*

QUESTION 7

What is the most commonly encountered neoplasia of the reproductive tract of backyard poultry?

a. Leiomyoma
b. Adenocarcinoma
c. Granulosa cell tumours
d. Adenoma
e. Lymphoma

QUESTION 8

Which of the following is not a recognized cause of egg eating in birds?

a. Obesity
b. Poorly designed nest boxes
c. Suboptimal nutrition
d. Boredom
e. Lack of decoys

QUESTION 9

Which of the following birds is most likely to present with a prolapsed phallus?

a. A 2 week old Mallard duckling
b. A 2 week old Crollwitzer poult
c. A 2 year old Muscovy drake
d. A 2 year old Sebright rooster
e. A 2 year old Sebastopol gander

QUESTION 10

Which of the following may lead to infertile eggs?

a. Roosters that have reached old age
b. Ganders that are obese
c. Toms that have matted feathers around the vent
d. Drakes with orchitis
e. All of the above

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