

# Common diseases in backyard poultry in Great Britain (excluding gamebirds)

Due to the increased popularity of backyard poultry keeping, veterinarians may find that they are sometimes asked to examine and treat poultry (frequently chickens) from these flocks. It is therefore important to be aware of and consider some of the common diseases that can affect backyard poultry to aid the investigation and differential diagnosis of bird and flock health problems.

**Neoplasms** are by far the most common diagnosis in backyard chickens. Neoplasms fall into two categories, those with an **infectious** aetiology such as Marek's Disease, and those with a **non-infectious** aetiology. The latter are usually sporadic and not of great economic significance, such as adenocarcinomas. Diagnosis by post-mortem examination (PME) and histopathology.

**Marek's disease (MD):** MD is a lymphoproliferative and neuropathic disease of chickens, and less commonly of turkeys. MD is caused by a cell-associated herpesvirus and can cause significant mortality and disease. MD virus is widespread and treatment is not possible. Vaccination is used in commercial flocks. MD may present as: (i) the classical form, with paralysis of legs and/or wings, and sometimes the neck (torticollis) with peripheral nerve enlargement; (ii) the acute form with multiple visceral tumours (multifocal lymphoma). Diagnosis by PME and histopathology.

**E. coli infections & Colisepticaemia:** *E. coli* infections can lead to a variety of diseases, including colisepticaemia (affecting multiple body systems - polyserositis), or be more restricted in distribution. In chicks during the first week of life, *E. coli* may cause yolk sac infection (omphalitis or mushy chick disease), characterised by abnormal discolouration of the yolk sac contents, usually non-absorbed and with a malodorous smell. Airsacculitis due to *E. coli* is often secondary to a viral, mycoplasmal or environmental challenge (dust and/or ammonia). *E. coli* is also commonly associated with so-called egg peritonitis (includes egg yolk coelomitis, salpingitis and impaction) in hens. Other conditions include cellulitis and coligranuloma. Diagnosis requires PME.

**Respiratory disease:** This is one of the commonest disease presentations in backyard poultry. Respiratory diseases are often multifactorial and may be caused by non-infectious (eg. dust, ammonia) and/or infectious causes. The latter includes viral, bacterial, mycoplasmal and fungal aetiologies, eg. AI, ND, Infectious Laryngotracheitis (ILT) virus, Infectious Bronchitis virus (IBV), *Pasteurella multocida* (Fowl Cholera), *Mycoplasma gallisepticum*, *Avibacterium paragallinarum* (Infectious Coryza) and Aspergillosis. Respiratory aspergillosis (brooder pneumonia) is a common mismanagement problem, with exposure by inhalation of environmental spores. Newly hatched turkeys, chicken and ducks are highly susceptible.

Co-infections with respiratory pathogens can occur quite often, and disease severity can also be influenced by environmental and host factors, complicating diagnosis. Primary viral- or mycoplasma-associated respiratory disease may predispose to secondary bacterial infection, although bacterial pathogens can cause disease in their own right. Therefore, laboratory testing is essential to reach an accurate diagnosis in order to provide appropriate advice on prevention and treatment. Flock serology can be useful to demonstrate exposure (in particular for Mycoplasmosis).

**Mycoplasmosis (*Mycoplasma gallisepticum*)** can cause acute or chronic respiratory disease, but often presents as a persistent or recurrent respiratory disease in backyard flocks. Diagnosis by serology and PCR/DGGE: <http://www.defra.gov.uk/ahvla-en/disease-control/non-notifiable/mycoplasmosis/#avian>

**Infectious Coryza** is typically an acute, highly contagious, bacterial disease of the upper respiratory tract, presenting clinically as severe nasal discharge, sinusitis and facial oedema. A drop in egg production may also be seen. Diagnosis requires PME (samples collected aseptically) and immediate bacteriology due to the fastidious nature of the organism: <http://www.defra.gov.uk/ahvla-en/disease-control/non-notifiable/infectious-coryza/>

## Viral diseases

**Infectious Bronchitis (IB)** is an acute, highly contagious viral respiratory disease of high morbidity and typically low mortality, which can also be accompanied by a sharp drop in egg production and affect egg quality. Neurological signs are not a feature. In broilers, IB has been associated with renal damage, mortality and poor performance. IB vaccination is common in commercial flocks. For detection of IBV and IBV-like gammacoronaviruses, AHVLA has developed real-time RT-PCR (RRT-PCR) and other molecular tests: <http://www.defra.gov.uk/ahvla-en/disease-control/non-notifiable/infectious-bronchitis/>.

**Infectious Laryngotracheitis (ILT)** is an acute viral disease of chickens which presents as severe dyspnoea (gasping) with bloody mucus and high mortality in adult birds. Introduction of infection is usually by asymptomatic carrier birds. Diagnosis is carried out by PME and histopathology. Vaccination is available.

**Duck Virus Enteritis (or Duck Plague)** is a contagious viral disease of adult waterfowl, characterised by a marked seasonality (commonly April-June) and exposure to wild/feral waterfowl, which may be carriers. Muscovy and Indian runner ducks have an increased susceptibility and Mallards more resistance. Clinically, increased mortality, ataxia, inappetance and watery, blood-stained diarrhoea may be seen. Diagnosis by PME and histopathology.

**Goose Parvovirus** is a highly contagious and fatal (up to 100% mortality) disease of young goslings and Muscovy ducklings, characterised by a rapid course of disease with anorexia, prostration and death. Diagnosis (*In Practice*, 2010, Vol. 32(8) pp. 382-386) by PME, histopathology, virus isolation and/or serology: <http://www.defra.gov.uk/ahvla-en/disease-control/non-notifiable/goose-parvovirus/>

**Blackhead (Histomonosis)** is a protozoal disease caused by *Histomonas meleagridis*, which affects turkeys most commonly, and sometimes chickens and gamebirds. Clinical signs include sulphur yellow droppings and mortality. PME characterised by multiple, necrotising target-like liver lesions (circular depressed area of necrosis circumscribed by a

raised ring) and typhlitis (severe ulceration and/or necrotic caecal cores). Diagnosis by PME and histopathology.

## Parasites

**Coccidiosis** is a protozoan disease associated with enteritis, ill-thrift and mortality. The severity of the disease is related to weight of the coccidial oocyst challenge and immunity of the birds. Typical gross lesions at PME may include thickening and/or dilatation of the intestinal tract, haemorrhagic intestinal or caecal contents or caseous caecal cores. Diagnosis by PME, microscopy and/or histopathology.

**Ectoparasites:** Red mite (*Dermanyssus gallinae*) and northern fowl mite (*Liponyssus sylvarium*) infestations cause lethargy, egg drop, anaemia (especially red mite), and can cause deaths. Other common ectoparasites include yellow body louse (*Menacanthus stramineus*). Burrowing mites of the genus *Cnemidocoptes* can cause feather loss (Depluming itch mite, *Cnemidocoptes gallinae*) or excessive scaliness of the skin, leading to thickening and even deformity of the legs (Scaly leg, *Cnemidocoptes mutans*).

**Endoparasites** can cause enteritis and ill-thrift in backyard poultry. Internal nematodes include: (i) *Ascaridia galli*, which causes ill-thrift, enteritis or intestinal impaction; (ii) *Heterakis gallinarum* which is not pathogenic, but has an important role in the transmission of Blackhead and is commonly located in the caecum; (iii) *Capillaria* spp., pathogenic when present in large numbers and requires microscopical examination of mucosal smears. Cestodes and trematodes are not usually pathogenic, except in young birds in high numbers (eg. *Davainea proglottina*).

## Toxicities

As backyard flocks are usually kept outdoors, and owners may have fewer stock husbandry skills, there may be opportunities for birds to gain access to toxins, including plants and other materials. Exposure to any toxin should be regarded as a potential food safety incident and, where necessary, risk management measures should be taken, and advice provided to flock owners to protect the food chain. Consult AHVLA and the Food Standards Agency for advice.

**Lead intoxication** may cause non-specific signs, gizzard impaction, egg drop or mortality and is due to occasional exposure of backyard chickens and ducks to lead, often from clay pigeon shooting. Waterfowl can sometimes ingest lead from the bottom of the ponds and lakes. Exposure to lead should be regarded as a potential food safety incident and measures should be taken to protect the food chain as appropriate, with relevant advice to owners.

**Rodenticide intoxication (eg. bromadiolone and difenacoum)** causes anaemia with fluttering, gasping and haemorrhages in eyes, mouth and other tissues, with death typically occurring within 72 hours. Occasionally, backyard hens may ingest anticoagulant rodenticides by accident due to careless bait placement.

**Ionophore intoxication** may occur in backyard turkeys if they get access to chicken feed supplemented with ionophore-based coccidiostats (usually broiler mix). Clinical signs include reluctance to walk, gait abnormalities, lameness, dyspnoea and death.

**Management:** Incorrect supply of grit or fibrous feeds may lead to gizzard impaction, and poor hygiene to sour crop. Inadequate nutrition may have devastating consequences with vitamin and mineral deficiencies such as rickets, a deficiency in calcium or phosphorus or insufficient vitamin D, which presents as poor chick performance, lameness and an increase in bone deformities. The bones in the limbs and beak will be pliable. Also, inadequate housing can make birds vulnerable to predation/cannibalism, as well as infectious disease risks.

**Zoonotic risks:** Healthy birds may harbour potentially zoonotic organisms such as *Salmonella* and *Campylobacter*. Owners/keepers should wear suitable protective clothing and practice good personal hygiene: <https://www.gov.uk/poultry-health#zoonoses---infections-passed-from-animals-to-humans>.

**Investigation & diagnosis of disease:** Please contact a Veterinary Investigation Officer (VIO) at your local AHVLA or SAC laboratory, who will be happy to provide guidance in diagnostic investigations. VIOs undertake post-mortem examinations on poultry. Cases and samples can be submitted after discussion with a VIO.

- Veterinary Investigation Centres & Labs: <http://www.defra.gov.uk/ahvla-en/about-us/contact-us/investigation-centres-labs/>
- AHVLA Surveillance Price List: <http://www.defra.gov.uk/ahvla-en/tests-and-services/lab-services/disease-surveillance-price-list/>
- AHVLA Avian Submission form: <http://www.defra.gov.uk/ahvla-en/form/vla2/>
- SAC Veterinary Services: [http://www.sruc.ac.uk/info/120107/veterinary\\_services](http://www.sruc.ac.uk/info/120107/veterinary_services)

#### Further information:

- AHVLA Surveillance Reports: <http://www.defra.gov.uk/ahvla-en/publication/avian-survreports/>
- Poultry Site: <http://www.thepoultrysite.com/>
- British Veterinary Poultry Association: <http://www.bvpa.org.uk/>

#### References & Further reading

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