Current diseases of ducks and their control

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Diseases of ducks affecting birds around the world can be conveniently divided based on the causal agent. However, often the same basic rules of biosecurity and disease control can apply to causes of disease whether they are bacterial, fungal or viral in nature.

Bacterial diseases

● **E. coli.**

This is by far the most common bacterial infection of all ages of commercial ducks and can certainly have the largest economic effect. In common with other classes of poultry, E. coli infections can affect chicks, growing birds and then parent stock. Being an environmental organism, it can act as a primary causal organism or secondary to other infections such as viruses or management problems which may affect the flock.

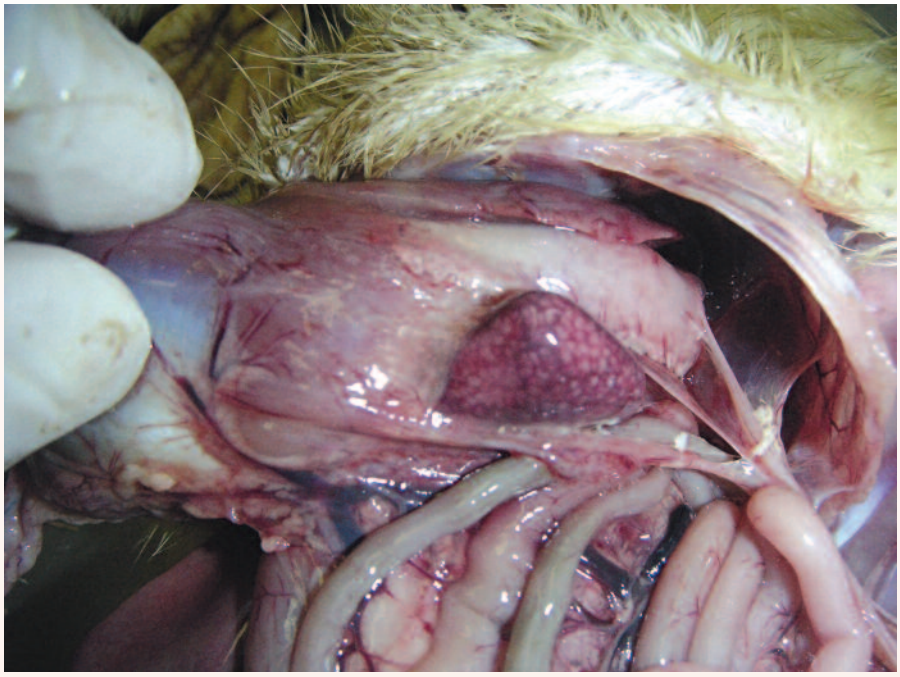
Signs in affected birds can vary from sudden death to birds being 'off colour' with their necks pulled into their bodies. The presence of a soft cough can also be suggestive of infections with E. coli.

Post mortem signs are very similar to those in the fowl or turkeys. Acute infections may only show a congested carcase, congested lungs and small haemorrhages of the heart and air sacs. However, more chronic infections will show the characteristic lesions of pericarditis, perihepatitis, enlargement of the liver, air sacculitis and pneumonia. In breeding birds, the presence of peritonitis and salpingitis is very common.

Diagnosis is relatively straightforward, based on the post mortem findings and a rapid growth of the organism on blood or MacConkey agar.

Control of this disease centres around improving hygiene in both laying and commercial farms. Poor standards of cleanliness within the house combined with high levels of bacterial contamination of the drinking water system will all predispose to this disease. Obviously, contamination of the eggs on the breeding farm or at the hatchery will also lead to yolk sac infections by E. coli.

An audit of these areas is very important in attempting to reduce the impact of infections. Antibiotic therapy based on sensitivity data from post mortem cultures can be effective in combating infections. The use of commercial inactivated E. coli or autogenous vaccines may be considered when severe problems affect a flock or integrated company.



Enlargement of the spleen in a duck with streptococcal infection.

● **Salmonella infections.**

True salmonellosis is comparatively rare in ducks but is often due to the serotype S. typhimurium. Clinical infections in commercial flocks usually follow a breakdown in hygiene measures on the breeder farm or at the hatchery as described for E. coli.

Affected birds are usually aged between three and 12 days, appear to be very depressed and can show signs of scour. Post mortem signs include acute dehydration, septicaemia, acute enteritis and the classical caecal cores of white caseous material.

Mortality levels in a flock can be quite significant, sometimes reaching 15%.

Routine sampling of flocks can reveal quite high levels of salmonella infections with no clinical signs evident. Although these infections do not have major economic effects on bird performance, pressure to eradicate is often brought to bear on the producer by end users such as supermarkets. Serotypes such as S. Indiana can be common on certain sites. It would appear that these infections can become endemic on commercial farms and eradication can be very difficult with re-cycling of the organism from crop to crop. Eradication measures would include improved rodent control, water sanitisation, improved house hygiene, and possibly the use of competitive exclusion products.

● **Streptococcal infections.**

Increased levels of mortality at around 10-14 days of age in commercial flocks have been implicated with infection by Streptococcus zooepidemicus. Post mortem findings include congested carcases, enlarged spleens which are mottled in appearance and often air sacculitis. The cause of air sacculitis in this instance has not been ascertained. Poor levels of hygiene have again been implicated as a contributing factor to this disease. Affected flocks usually respond very well to treatment with antibiotics such as amoxycillin.

● **Pasteurella infections.**

Infections with Pasteurella multocida (fowl cholera) in ducks are extremely common

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across the world. This organism is very common in Asia and the Middle East countries. Signs in acute outbreaks can be just sudden death in large numbers of birds. In more chronic infections signs of depression, conjunctivits and dyspnoea can occur.

Diagnosis is relatively straightforward by bacterial culture, although the organism can be masked by overgrowth of bacteria such as E. coli. Infections are not thought to be passed vertically but can remain resident on a farm for many cycles of production.

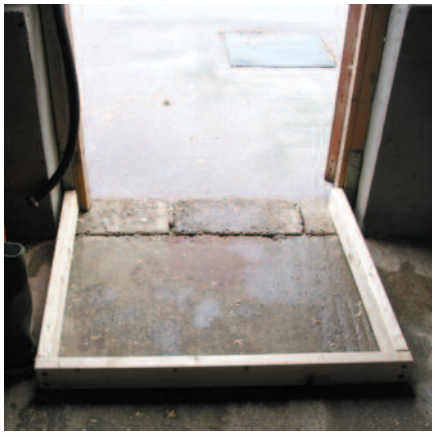
Rats are certainly known to be a reservoir for P. multocida and transfer between birds can occur through infected water and around feed troughs.

Treatment of peracute or acute cases is almost impossible with antibiotics, however, the more chronic cases can respond to tetracyclines. These improvements only tend to last as long as the treatments.

Vaccination using multi-strain inactivated vaccines can be effective in preventing infection, although autogenous vaccines are usually more successful. The depopulation of the affected site, thorough cleansing and disinfection of the buildings and equipment and strict rodent elimination is the best long term control of this disease.

● **Riemerella anatipestifer infection.**
Riemerella anatipestifer causes disease in ducks throughout the world. Formerly known as Pasteurella anatipestifer, this organism usually causes disease in young ducklings aged between two and six weeks. The organism is thought to be vertically transmitted through the egg and lateral transmission occurs via the respiratory route. Stress factors such as moving birds and environmental variations can trigger disease. Signs usually include head shaking, lethargy and an abnormal gait. Post mortem signs in acute cases include enlargement of the liver and spleen and lung congestion.

In more chronic cases, pericarditis, perihepatitis and air sacculitis with a caseous deposit can be found. Treatment with a range of antibiotics has been found to be successful. Prevention is best achieved with good hygiene and husbandry and by avoiding stress in the flock where possible.



The use of step over barriers at the entrance to the house can be very useful with a change of footwear.

Fungal infections

Fungal conditions such as aspergillosis can be a major factor affecting duck health.

Straw bedding will obviously allow the ingress of fungal spores into the duck house. Fungal growth in straw harvested under very wet conditions will predispose to the development of high numbers of spores in the bedding. Therefore, it follows that this disease can be a major problem in areas of the world with high rainfall and humid conditions predisposing.

Aspergillosis can cause major mortality in young ducklings or older birds which are coming under stress, for example breeding birds. Fungal growth in the air sacs and more specifically within the lung tissue itself is diagnostic. Checking straw for levels of fungal spores, especially in areas of the world where this is prevalent, can be beneficial in selecting suitable bedding material.

Viral infections

● **Duck virus hepatitis (DVH).**
Although this disease was first described in the USA, it has been diagnosed all around the world. It has since become endemic in those regions.

DVH affects young ducklings between two days and 21 days of age. It usually presents as a very acute disease, affected birds dying within a few hours of showing clinical signs. Birds usually die in good condition with heads stretched upwards in opisthotonus.

Mortality may reach 90%, although typically this is more likely to be 10%. Post mortem signs include an enlarged liver with petechial and ecchymotic haemorrhages. These clinical findings are diagnostic. Control is normally effective using a live vaccine administered by foot stabbing in one day old ducks.

● **Duck virus enteritis (DVE/duck plague).** This viral infection was first diagnosed in 1949 in the Netherlands, but has since been diagnosed in the USA, Europe and other duck rearing areas of the world. Mortality can also reach 90% with a swift onset of clinical signs. These include conjunctivitis, nasal discharge, inappetance, soiled vents and watery diarrhoea.

Spread appears to be more rapid when birds have access to swimming water. Birds usually die in good bodily condition.

Vascular damage characterises this condition with haemorrhages on the heart, liver, pancreas, intestines, lungs and kidneys.

Haemorrhages are also very common on the mucosal surface of the alimentary tract. Later in the disease progression, yellow diptheritic plaques develop in the oesophagus and cloaca which are fairly diagnostic.

A live vaccine exists which, when inoculated into susceptible stock, should give reasonable protection.

● **Avian influenza and Newcastle disease.** The recent global spread of highly pathogenic avian influenza virus H5N1 has highlighted the association between wild birds and domestic poultry. Recent outbreaks in Asia have shown that ducks appear to be very susceptible to infection with this virus, whilst sometimes not showing any clinical signs. Indeed, mortality levels are often very low in commercial ducks compared to chickens and turkeys.

However, egg drops seen in breeding flocks can be a significant sign of infection with avian influenza. Rearing ducks commercially in extensive systems in Asia have shown that there is an increased risk of transmission of this virus from wild fowl and other carriers to these birds. Similar experiences in many parts of the world have shown that Newcastle disease can become endemic in natural bird populations which can make control and eradication very difficult.

This puts extra pressure on producers to improve hygiene and biosecurity.

Biosecurity

Establishing the duck farm geographically distinct from other poultry sites is a major advantage. Ideally a 1km space between neighbouring poultry sites would be an advantage, however, it should be noted that certain micro-organisms can travel large distances on the wind. The presence of a perimeter barrier to help stop the passage of unwanted persons and vehicles onto the site is also very important. The logging of people onto a farm is an essential part of control measures and it has been shown that vehicles can be important vectors for disease transmission from site to site.

Using specific clothing and footwear for the site and indeed for specific houses is a very important way to stop disease entering the duck houses. Enforcing this can be difficult, so the use of step over barriers at the entrance to the house can be very useful with a change of footwear.

Foot dips, protected from ultraviolet sunlight should also be used at these points.

People often forget to include hand wash systems at the entrances to poultry houses and yet it has been shown that transmission from the hands of workers can be instrumental in helping disease pass from bird to bird. As was discussed previously for the control of bacterial diseases such as salmonella, the prevention of access to the poultry house by wild birds and vermin will also reduce the risk of all micro-organisms gaining access.

Bedding removal is often overlooked but unless the bedding material is removed completely from a site, then ongoing disease issues such as salmonella and viral diseases can continue by recirculation. ■