University of Mosul
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Lecture title: ***Turkey diseases***
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Summary:

Turkey diseases

Bordetella (Turkey coryza)

Bordetellosis is a highly contagious upper respiratory tract disease caused by Bordetella avium. The disease primarily affects young turkeys. Bordetellosis occurs in 2 to 6-week-old poults. The disease is characterized by its sudden onset and rapid spread with high morbidity (80 to 100% in 36-72h) and low mortality.

The first clinical signs include foamy conjunctivitis, sneezing and coughing, with moist tracheal rales, but these signs are not specific for bordetella. In older turkeys, the only sign is a dry cough. New signs are observed during the second week after the onset of the disease. The exudate becomes progres sively thicker, crusted, brown, soiling the nostrils and the feathers of the head and shoulders.

Some poults may show dyspnea, open-mouth breathing and the voice of affected poults may become high-pitched. Submandibu lar edema is commonly noted. Diagnosis of bordetellosis is partly based on its sudden appearance and rapid spread in young turkeys.

Avian metapneumovirus (turkey rhinotracheitis, TRT,)

Rhinotracheitis in turkeys is an economically important disease caused by avian metapneumovirus (aMPV). The disease may manifest itself more as a rhinitis than a tracheitis, and the virus can replicate in reproductive organs. Infected turkeys can show the symptoms of sneezing, snicking, rales and head shaking. There is a nasal discharge, foamy conjunctivitis and swelling of the sinuses. Some birds develop pus cores within the infraorbital sinuses, large numbers of Escherichia coli and other bacteria being present. This can lead to mortality, especially in poults.

Morbidity is frequently 100% in flocks that have not been vaccinated or previously infected. Mortality may vary between 3% and 15%. Mortality can also occur in vaccinated flocks, depending in part on the nature of the bacteria present and environmental factors (poor ven tilation, high levels of ammonia and dust) that enhance infection by these secondary pathogens. Surviving birds recover within 10 to 12 days. Vaccination is the main form of control in countries where aMPV infection is widespread.

Turkey coronavirus

Turkey coronavirus is a highly contagious disease of turkeys of all ages. Signs of coronavirus include depression, subnormal body temperature, diarrhea, loss of appetite, weight loss, poor growth, poor feed conversion, watery feces, dehydration, and prostration.
Some flocks of turkeys with coronavirus seem to be healthy and show few signs of the disease. However, flocks that test positive for this virus usually do not perform as well (with respect to growth and feed conversion) as flocks that test nega' tive, even when they do not show signs. Mortality can be very low or extremely high in poults but is usually low in older birds.
Coronavirus is spread by direct or indirect contact with infected birds or contaminated premises. **Prevention** Some antibiotics may help in cases of high mortality with sec ondary bacterial problems. However, good husbandry and man agement and strict adherence to good biosecurity practices are the best prevention for coronavirus.

Erysipelas

Erysipelas is caused by the bacteria Erysipelothrix rhusi opathiae. It not only causes death in the flock, but also infertility in the male. For humans it is dangerous, since it is a zoonosis. A sudden outbreak is a characteristic of all infected birds, whatever their age. Toms are predomi nantly affected. Many birds will have no clinical signs and may be found dead, but some will have an unsteady gait and appear weak beforehand.

A dark, purple, swollen snood is commonly seen in affected toms. The bacteria are transmitted by contaminated material, entering the bird via defects of the mucous membrane or skin. Fish or fishmeal has been cited as the most likely causes of infection in turkeys. The bacteria can also be transmitted in the semen of the tom. Husbandry measures such as rotating turkeys from contaminated areas and disinfecting equipment with 1-2% sodium hydroxide is recommend ed. It can be treated with antibiotics and vaccination (erysipelas bacterin) is also available

Astrovirus

Astrovirus can cause severe typhlitis in birds of
around 5–10 days old with runting, requiring culling. Post-mortem features resemble those caused by rotavirus. Diagnosis is by PCR on intestinal contents.

Poult enteritis and mortality syndrome (PEMS)

PEMS is a mixed aetiology syndrome involving coronavirus, astrovirus and avian enteropathogenic E. coli, causing scouring with mortality in young birds of between 1–4 weeks of age.

Colibacillosis

Escherichia coli is commonly isolated from young poults with yolk sac infection, with contamination occurring at any time throughout egg production and hatching, including via the navel after hatching. Outbreaks of disease may also occur in older birds associated with underlying stress factors, such as adverse water hygiene, chilling, inadequate ventilation and following turkey rhinotracheitis challenge.

Necrotic or ulcerative enteritis

This is a relatively recently observed enteric disease of turkeys, principally affecting birds of around 8–10 weeks. Post-mortem examination may indicate pale 'craters' in the wall of the small intestine, which may be visible from the serosal surface

Rotavirus

Clinical signs associated with rotaviruses are most prevalent in turkey poults around the age of 4–14 days. Birds may present with an acute, watery diarrhoea, vent staining and crusted plumage. Partial vent prolapse and vent pecking may also occur. Mortality associated with dehydration is possible. Secondary infection by the flagellated protozoan Spironucleus meleagridis may also occur. Post-mortem features include dilation of the caecal pouches, and possibly the small intestines, with pale-yellow, markedly watery and often frothy contents.

Management of the infection is through addressing the signs, particularly hydration with oral glucose and electrolytes. Hyper-immune egg powder can reduce the severity of infection. Improved hygiene and management between batches is important.

Dysbacteriosis' or 'enteric disturbance'

This undefined condition can be an important cause of wet litter. It has a number of possible underlying factors, including chilling, nutritional components, parasites, viruses and bacteria. Gross post-mortem findings can demonstrate watery small intestinal and caecal content, sometimes with reddening of the intestinal wall. Management involves regularly topping up bedding, good water hygiene, a warm atmosphere and ventilation.

Haemorrhagic enteritis

Haemorrhagic enteritis is a widespread disease caused by turkey adenovirus type II which can result in sudden death, sometimes with blood staining at the vent and bleeding throughout the small intestine with accumulation of blood in the caeca. Maternal immunity probably provides some resistance. The virus is immunosuppressive, and subclinical infections may be followed by E. coli infection with mortality. Adenoviruses are resistant and biosecurity is important in control. Effective live vaccines are available, administered via the drinking water.

ORT/Ornithobacterium rhinotracheale

This is the cause of overt respiratory disease, lameness and mortality in commercial stock. Birds can carry the organism subclinically and overt disease can be the result of other factors, such as avian metapneumovirus infection, or another respiratory stressor such as inadequate ventilation. Respiratory signs may be associated with, or followed by, locomotor signs affecting shoulder joints and legs in turkeys. Antibiotic sensitivity profiles are considered to vary across the world, but chemotherapy may be effective. An inactivated ORT vaccine administered subcutaneously at 28 days is protective.

Coccidiosis

All turkeys are likely to be exposed to Eimeria to variable extents. Five species of Eimeria are known to cause lesions in turkeys. Eimeria meleagrimitis, affecting the upper small intestine, and E. adenoides, affecting the caeca and rectum, are associated with significant disease. Other species include E. gallopavonis and E. meleagridis, affecting the lower small intestine, rectum and caeca, and E. dispersa which is found in the small intestine. Coccidiosis may be underdiagnosed in turkeys.

Treatments of choice include toltrazuril, amprolium and sulphonamides. Introduction of ionophores after several weeks with no exposure can lead to toxicity. Drugs such as tiamulin whilst using ionophores increase the risk of toxicity.

Aortic rupture and renal haemorrhage

Spontaneous blood vessel rupture can occur as a result of fast growth, activity and excitement, typically seen in heavy stags towards the end of the growing cycle. The risk can therefore be reduced by decreasing growth rate and also by reducing activity with adjusting light intensity. Some producers have had success with reducing mortality rates by water supplementation with copper, and possibly other products (e.g. magnesium and nicotinamide).

Septic arthritis

Septic arthritis is a relatively common cause of lameness in turkeys. Purulent hock or stifle joint infection are the most frequent sites, with infection reaching the joints by systemic translocation from other sites of infection. There may also be cases where infection extends from pododermatitis. Staphylococcus is the most frequently associated organism, although E. coli can also be isolated.

HISTOMONIASIS (Blackhead; Enterohepatitis)

Histomoniasis is a protozoal disease caused by Histomonas meleagridis affecting a wide range of birds including turkeys, chickens, peafowl, grouse, quail, other gallinaceous birds and ducks. The disease is characterized by necrotizing lesions involving the ceca and liver. The etiologic agent is the protozoan Histomonas meleagridis, assisted by secondary bacteria. Ingestion of earthworms containing cecal worm larvae within their tissues. Earthworms serve as transport hosts for the cecal worm and the cecal worm acts as a transport host for the histomonad. Infection results after the cecal worm larvae are liberated during digestion.

In turkeys histomoniasis appears 7-12 days after exposure. Initially there is listlessness, moderate anorexia, drooping wings and yellow ("sulfur colored") feces. Head parts may be cyanotic ("blackhead") although they often are not. In chickens with histomoniasis there may be some blood in the feces.

Gross lesions. There is a bilateral enlargement of the ceca with thickening of the cecal walls The mucosa usually is ulcerated. The ceca often contain caseous cores which are yellow, gray or green and may be laminated. In chronic cases the cores may VetBooks.ir PARASITIC DISEASES have been expelled. Peritonitis occurs when the cecal wall becomes perforated.Liver contains irregularly-round, depressed, targetlike lesions that vary in They often are yellow to gray but may be green or red. They vary greatly in diameter but often are 1-2 cm and may coalesce to produce larger lesions

TREATMENT There is currently no approved medication for treatment of histomoniasis in food animals. Small groups of birds not being raised for consumption can be effectively treated individually with metronidazole at a dose of 30 mg/kg orally SID for 5 days. Antihelmintic treatment may help suppress the population of cecal worms.