University of Mosul
Lecture No.:
College of Veterinary Medicine
Date:
Unit of Scientific Affairs
Website:

Lecture title: ***Pigeon diseases***

Lecturer Affiliation:

Summary:

Pigeon diseases

Paramyxovirosis

Aetiology

Paramyxovirosis in pigeons is caused by a serotype 1 paramyxovirus (PMV1). the viruses typically spread to the kidneys and/or the central nervous system, Because of this, multiplication of paramyxovirus in the pigeon kidneys results in polyuria and subsequent polydipsia, central nervous disorders. The incubation period of the pigeon paramyxovirus infection is between 5 and 35 days

Clinical signs and lesions

These signs consist of torticollis, incoordination of head movements, trembling wings and complete or partial paralysis, Polyuria and polydipsia can last for 6–8 weeks. Pigeons that are not cured within that period often suffer from irreversible lesions and show polyuria for the rest of their life.

Morbidity in this type of disease is usually 100%. Mortality, on the other hand, is usually less than 5%. This 5% comprises pigeons that became unable to eat or drink due to nervous disorders.

Finally, it must be noted that pigeons suffering from paramyxovirosis develop little or no respiratory distress. This is clearly different to paramyxovirosis (NCD) in poultry.

Diagnosis

Torticollis as well as polyuria and polydipsia in the absence of weight loss are very indicative signs for paramyxovirosis. Weight loss, diarrhoea and vomiting are less typical and might as well be ascribed to other infectious diseases such as adenovirosis, salmonellosis or hexamitiasis.

Control

Pigeons suffering from paramyxovirosis can be supplemented with vitamins and essential amino acids or fed with a low protein diet in order to relieve the function of the kidneys. Antimicrobials, electrolytes and glucose might be an aid in pigeons showing diarrhoea and vomiting. However, a therapy directed against the aetiological agent is not available.

Pigeons can be subcutaneously injected with the vaccines from the age of 5–6 weeks. If possible, they should be vaccinated during the late winter or early spring. Protective immunity develops between 1 and 3 weeks after vaccination

For the eye and nose drop method, 1000 La Sota vaccine doses should be suspended in 50 mL water and one drop of the resulting suspension administered into each nostril and each eye

Pigeon exhibiting torticollis due to a paramyxovirus infection

Adenovirus infections

Adenovirosis type I: occurs worldwide in pigeons younger than 1 year. Pigeons over 1 year old are not affected, The viruses replicate in the nucleus of epithelial cells of the intestinal tract, resulting in severe intestinal damage, The adenoviruses may spread from the intestinal tract to the internal organs, predominantly the liver, where replication will also take place

Clinical signs and lesions

Macroscopically, **adenovirosis type I** lesions are characterized by catarrhal enteritis in young pigeons. Secondary E. coli infections may, however, lead to a more severe and prolonged disease. In such complicated cases, pigeons suffer from a green and foul diarrhoea, emaciation and severe weakening, eventually resulting in death. Furthermore, some pigeons die per-acutely from E. coli septicaemia.

Diagnosis ;typical signs of diarrhoea and vomiting; young pigeons only affected and a typical seasonal appearance.

Adenovirosis type II: The viral agent is able to induce extensive hepatic necrosis, which may result in sudden death of the pigeons. E. coli secondarily invades the liver and other internal organs in approximately 15% of cases

Clinical signs are always minimal, since all affected pigeons die within 24–48 hours. The only clinical signs occasionally seen are vomiting and production of yellow, liquid droppings. Sudden deaths can continue for 6 weeks, with new cases occurring intermittently. Mortality in affected pigeon lofts is usually about 30%, but in some cases amounts to 100%.

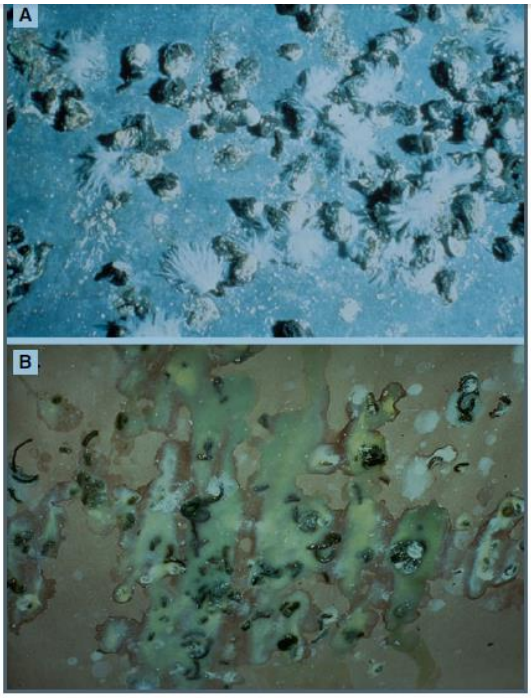

Fig 15.7 **A** Normal droppings of a pigeon. **B** Yellow regurgitant and droppings due to an adenovirus infection.

Pigeon circovirus infection

'Young bird sickness' is a common syndrome of young racing pigeons, usually seen between the ages of 4 weeks and 4 months. Affected birds are lethargic, with loss of appetite, the production of green watery faeces, and sometimes retention of food in the crop.

Many birds return to health within 5-7 days Circoviruses are small nonenveloped viruses with a single strand of circular DNA. Measuring around 14-24 nm, they are the smallest viruses known to affect animals. Important members of the family include psittacine beak and feather disease virus (PBFDV), chicken anaemia virus (CAV) and porcine circoviruses I and II (PCV I and II). Circovirusl ike viruses have also been described in other avian species such as canaries, finches, ostriches, Senegal Doves, ducks, geese and pheasants.

Most circoviruses target the immune system of the host and this appears to be true tor pigeon circovirus, which attacks the bursa of Fabricius, making birds more susceptible to infectious disease and reducing their ability to respond to vaccines. The bursa is only active in young birds and regresses as the birds mature

Clinical signs ('young bird sickness')

Circovirus infection has been demonstrated in birds showing signs such as ill thrift, loss of appetite, weight loss, 'diarrhoea' or poor racing performance. Less commonly, signs of vomiting, respiratory disease or central nervous signs are seen.

Diagnosis

Circovirus DNA can be demonstrated by PCR in tissues, cloacal swabs and blood samples from infected birds

TreatmentThere is no specific treatment for circovirus infection, and it must instead be supportive and aimed at controlling any secondary infections identified at postmortem examination.

Paratyphoid – Salmonellosis

Cause - This very common and quite widespread is caused by a gram-negative bacterium which is
flagellated, therefore mobile. It can be brought into a loft either through introduction of infected pigeons, by rodents, through inhalation of infected dust, on the soles of fanciers shoes, by roaches,
or through contact with wild pigeons. Often an adult bird that has overcome the disease remains a carrier and continues to produce infected droppings
Symptoms - Salmonella flagellates can be found throughout the body in severely infected birds. Thus, a variety of symptoms is possible. Most adult birds will show rapid weight loss, along with somewhat loose, greenish droppings. Some birds may develop swelling in the leg joints or feet, or
may develop wing boils. Other birds may have the "twisted neck" syndrome commonly associated
with PMV. Baby birds will often show labored breathing or die in the nest before the second week
after hatching. Another symptom young dying in the egg.
Prevention - Loft hygiene is critical, because salmonella flagellates can live in the droppings for some time. But once AntiFungal and Improver are given in the drinking water of the pigeons, the droppings will stop being infected with salmonella.Regular cleaning and disinfecting of lofts, feeders
and drinkers is imperative. Minimizing contact with rodents, roaches and wild birds, quarantining newly acquired birds, and maintaining an acid pH level below 4.0 thanks to Improver in our lofts are
all helpful steps in keeping this disease under control. Several veterinarians have recommended the
use of Nolvasan disinfectant together with Improver at one teaspoon per gallon (4.5 liters) of drinking
water regularly to help maintain an acidic environment in the droppings. Regular use of the Improver
against salmonella has proven to be especially effective.

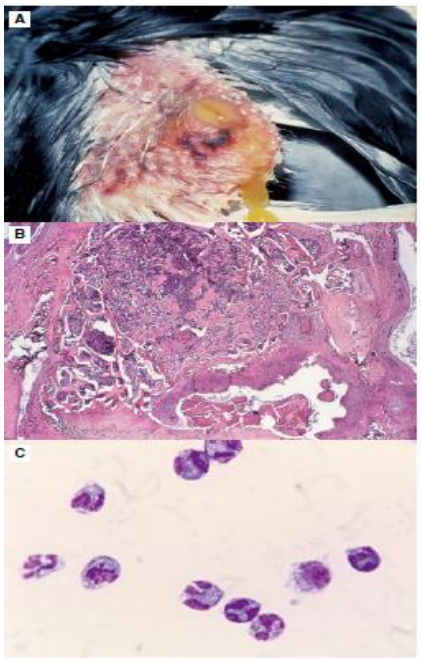

Fig 15.12 *Salmonella*-induced arthritis of the elbow. **A** Swollen elbow with mucoid discharge. **B** Histology of the arthritis; haematoxylin & eosin. **C** Cytology of the fluid showing toxic heterophils.

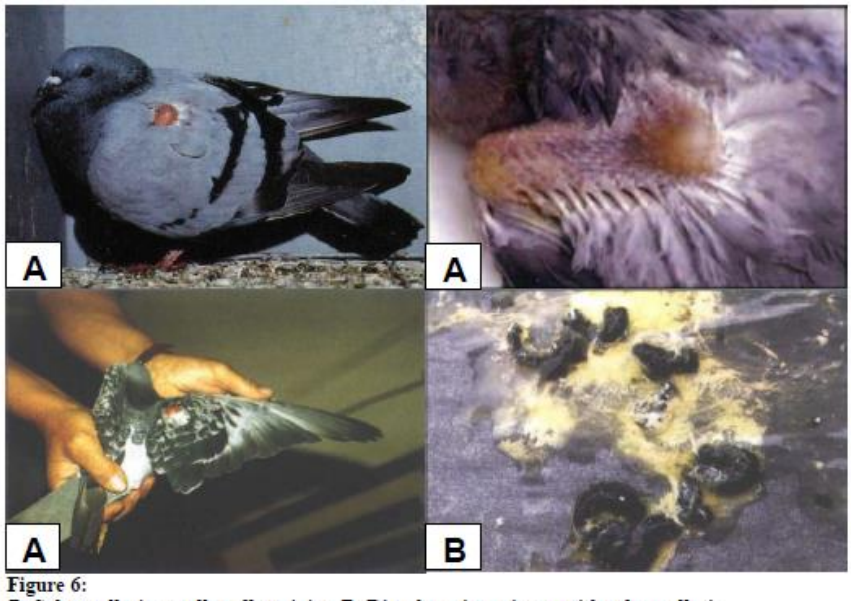

Figure 6:
A- Salmonellosis: swollen elbow joint. B- Diarrhoea in a pigeon with salmonellosis

Canker - TrichomoniasisCanker

Cause - This is the most common pigeon disease. It's caused by a microscopic protozoan which is flagellated and , therefore, mobile. It can be transmitted from one bird to another usually through the drinking water, and parent birds can infect their young through feeding.
Symptoms - Infected birds show a definite reduction in activity, ruffled feathers, loss of weight, increased water intake, and diarrhea. Cheesy yellowish deposits can often be observed in the mouth or throat. In advanced stages , a stringy mucous and putrid odor can be detected in the mouth.
Young birds are most susceptible.
Prevention - Control stress with half dosage of Improver and AntiFungal, this will control the stress to 0 in the birds. Pigeons suffering from trichomoniasis can be treated with different 5-nitro-imidazoles such as ronidazole (100–200 mg/L), dimetridazole (400 mg/L) and metronidazole (1 g/L)
Maintain regular feed and withering schedules, sanitize drinkers regularly, isolate and observe any newly acquired birds for several weeks, and administer an anti-canker drug or Improver on a regular basis throughout the year. Veterinary recommendations vary from once every three months to once a month. This will depend upon incidence and susceptibility in your own flock

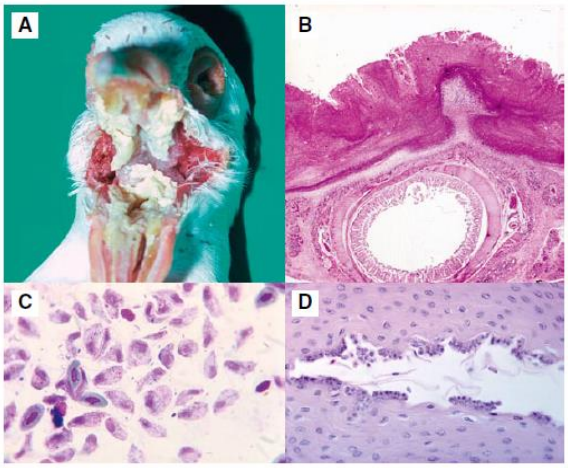

Fig 15.13 Trichomoniasis. **A** Caseous masses in the mouth. **B** Necrotic layer on the crop wall; haematoxylin & eosin. **C** *Trichomonas* sp. in cytology; Hemacolor © 100×. **D** A layer of *Trichomonas* sp. on the crop epithelium; haematoxylin & eosin.

Spironucleus columbae (hexamitiasis)

The causative agent of hexamitiasis is Spironucleus columbae (formerly Hexamita columbae, It can cause severe diarrhoea in young pigeons. Adult birds play a role as asymptomatic carriers. Infestation with clinical signs is normally the result of a combination of poor hygiene and accompanying bacterial, viral or parasitic infections. The parasite lives in the duodenum and small intestine and is spread by the faeces. Spironucleus lacks a cyst form and is therefore very sensitive to a dry environment.

Clinical signs and diagnosis

Clinical signs are diarrhoea of varying extent, with greenish loose to watery faeces, general depression, dehydration and weight loss. Sometimes undigested seeds are seen in the faeces. Vomiting is also possible. Mortality in young pigeons is up to 80%, depending on immune status and secondary infections. Spironucleus columbae can be demonstrated in fresh warm wet faecal samples. The organisms are identified by their motility (rapid darting motion, in contrast to the jerky motions of trichomonads).

TreatmentTherapy includes vitamin supplementation and hygiene control. Metronidazole and ronidazole can be used.

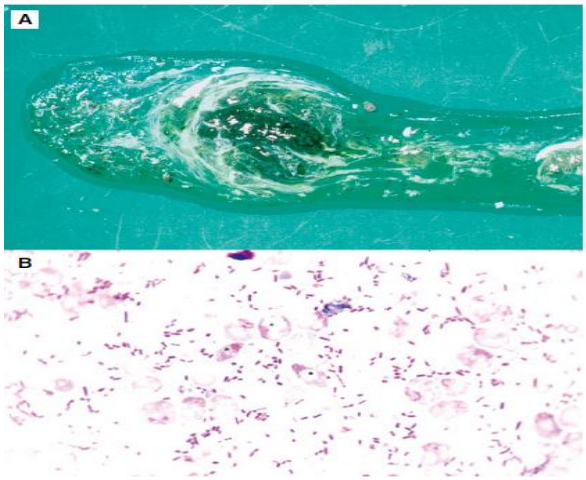

Fig 15.14 *Hexamita columbae*. **A** Diarrhoea associated with *Hexamita columbae*. **B** *Hexamita columbae* in cytology.