

## LECTURE NOTES ON NEOPLASTIC DISEASES OF POULTRY

*Dr. Sanjiv Kumar*

- LYMPHOID LEUCOSIS
- MAREK'S DISEASE

### Lymphoid Leucosis

(*LL, Big Liver Disease, Visceral Leucosis*)

#### Cause

*Retro (leuco) virus.*

#### Transmission

Through eggs. However, horizontal transmission at a young age may occur. Infected breeders can be detected by testing hatching eggs and cloacal swabs for the presence of the virus.

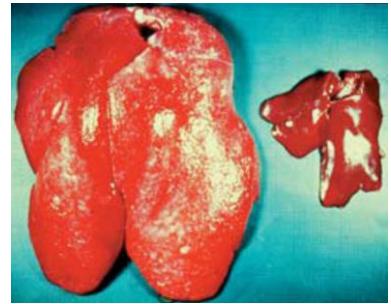
#### Clinical signs

Visceral tumors are the main feature of lymphoid leucosis. They can be found in liver, spleen, kidneys, and bursa of birds that are in general older than 25 weeks. In affected layer flocks a lower egg production can be observed. Osteopetrosis is lymphoid leucosis of the bones of legs and wings which become enlarged, but is quite rare. Affected birds have bowed thickened legs. It can also occur as blood leucosis. Such erythroid and/or myeloid leukemias are also quite rare. Because of the tumors, LL may be confused with Marek's disease, but in LL the nervous system is never involved (no paralysis). LL generally causes birds to weaken, lose weight and eventually die. Histopathological examination is essential for a proper diagnosis.

#### “J” Virus

Recently, within the known subgroup of exogenous LL viruses (A, B, C and D), a new subgroup denominated “J” has emerged. The new “J” virus shows tropism for cells of the myelomonocytic series, causing tumors, which are identified by histopathology as being myelocytomas. The virus has tropism for meat –type birds. The tumors caused by this virus are normally seen from sexual

Lymphoid Leucosis (big liver) Right: normal  
Left: affected



maturity onward and are frequently located on the surface of bones such as the junction of the ribs, sternum, pelvis, mandible and skull and may be also found in visceral organs.

**Treatment and control**

No treatment is known.

## MAREK'S DISEASE

(MD, Neurolymphomatosis)

### Cause

*Herpes virus.*

### Transmission

By infected premises, where day-old chicks will become infected by the oral and respiratory routes. Dander from feather follicles of MD-infected chickens can remain infectious for more than a year. Young chicks are particularly susceptible to horizontal transmission.

Susceptibility decreases rapidly after the first few days of age.

### Species affected

Domestic fowl.

### Clinical signs

Infected birds show weight loss, or may exhibit some form of paralysis. Mortality varies from 5 to 50 % in unvaccinated birds. The classical form (paralysis) with leg nerve involvement causes a bird to lie on its side with one leg stretched forward and the other backward.

When the gizzard nerve is involved, the birds will have a very small gizzard and intestines and will waste away.

Mortality usually occurs between 10 and 20 weeks of age.

### Diagnosis

The presence of tumours in liver, spleen, kidneys, lungs, ovary, muscles, or other tissues is indicative of MD, but they can also be indicative of lymphoid leucosis. However, nerve involvement, either grossly (swelling of leg, wing or other nerves) or microscopically, is typical of MD. Eye involvement can be visible as an irregular constriction of the iris (ocular lymphomatosis). Skin involvement (skin leucosis) often consists of tumours of

MD leg paralysis



visceral tumours



Enlargement of a sciatic nerve



feather follicles or in between follicles. Skin leucosis is a reason for broiler condemnation in certain parts of the world. A proper diagnosis to differentiate MD from LL requires histological examination.

### **Treatment and control**

Vaccination of day-old chicks is an effective mean of control. It has been demonstrated that MD vaccine only prevents the appearance of Marek's disease tumours and paralysis. It does not prevent the birds from becoming infected with MD-virus. It is therefore of major importance to maintain high hygienic and sanitary measures by good management to avoid early exposure of young chickens.