



# **PRACTICAL APPROACHES FOR DIAGNOSIS AND TREATMENT OF POULTRY DISEASES**

**A WORKSHOP HELD ON THE 6<sup>TH</sup> AUGUST 2014 IN  
THE DEPARTMENT OF VPMP, FVM, COLLEGE OF  
AGRICULTURE AND VETERINARY SCIENCES,  
UNIVERSITY OF NAIROBI**



# Misdiagnosis of Poultry Diseases at Necropsy

Presentation by

**Dr Mahacla Odongo**

Department of Veterinary Pathology, Microbiology and  
Parasitology, Faculty of Veterinary Medicine,  
University of Nairobi



# Diagnosis and Misdiagnosis of Poultry Diseases at Necropsy



**Diagnosis :** Identification of the nature of illness or other problem by examination of the symptoms, PM lesions and laboratory investigation(s).

**Misdiagnosis:** Incorrect diagnosis

**Correct diagnosis** of Poultry disease based on:

1. Flock History
2. Clinical Signs/Symptoms
3. Postmortem lesions
4. Histopathology
5. Microbiological, Parasitological and Toxicological Laboratory investigations/Analysis using appropriate specimens
6. Serology and DNA methods (rarely)



# Consequences of Misdiagnosis



- Loss of birds
- Waste of money and resources (wrong drugs used, Vet fees, etc)
- Spread of misdiagnosed infection
- Unwarranted Alarm to the poultry industry (reported as new infection)
- Misreporting
- Wrong control measures



# Some of the most **Misdiagnosed** Poultry Diseases/Conditions at Necropsy



- Marek's disease
- Swollen Head Syndrome
- Newcastle disease
- Avitaminosis A
- Fusaritoxicoses
- Fowl Pox (Wet form)



# Misdiagnosis of Poultry Disease



- Misdiagnosis of Poultry Disease is due to biased consideration of the above parameters
- Correct diagnosis of poultry disease: Parameters 1 to 5 must always be considered, and if facilities permit, parameter 6.
- In some cases, parameters 1 to 3 are adequate to confirm a diagnosis of a poultry disease, e.g the neural form of Marek's disease. In other cases one requires parameters 1 to 4, or 1 to 5 or all of them.



# Marek's Disease



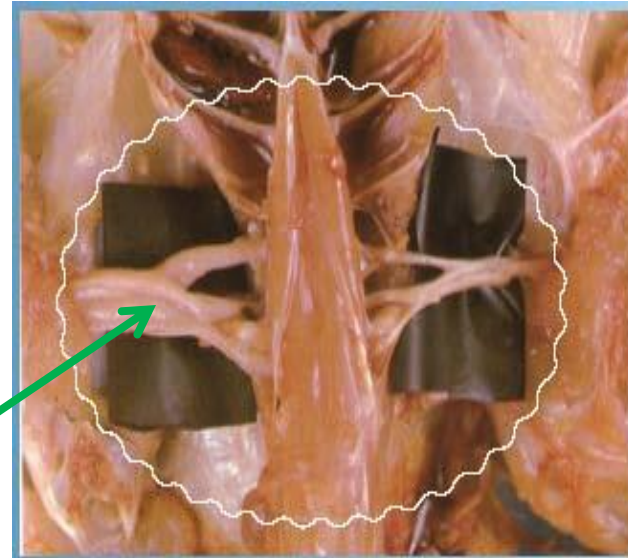
This disease occurs in two forms:

1. **Neural (Classical form)**- Classical Marek's disease is characterised by enlargement of peripheral nerves up to three times the normal size. Occasionally lymphomas (tumours) occur in visceral organs.
2. **Vicseral form**- Marek's disease occurs as tumours in internal organs, including the ovaries, liver, spleen, kidney and heart. Sometimes the skin is involved in which case we observe tumors of feather follicles





## Neural form of MD



**Enlarged sciatic nerve (pathognomonic)**





## Ocular form of MD



**Opacity of the iris; may be irregularly shaped**



# Visceral form of MD





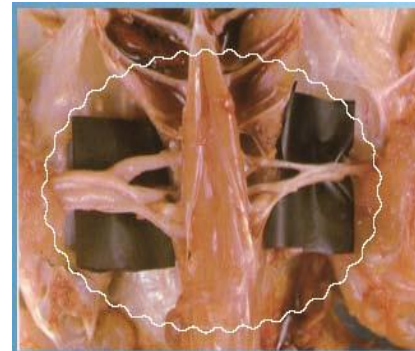
## Diagnosis and Misdiagnosis of MD



- **Diagnosis:** History, clinical signs, combined with post-mortem findings, will confirm the diagnosis in most cases, and, most importantly, rule-out other diseases.
- Marek's condition can be confused with **lymphoid leukosis**. The two diseases are differentiated by: (1) the age at which birds are affected, (2) the presence and focus of lesions, (3) the presence and absence of paralysis and the category of neoplastic lymphoid cell affected.



# MD and LL postmortem lesions



**MD**

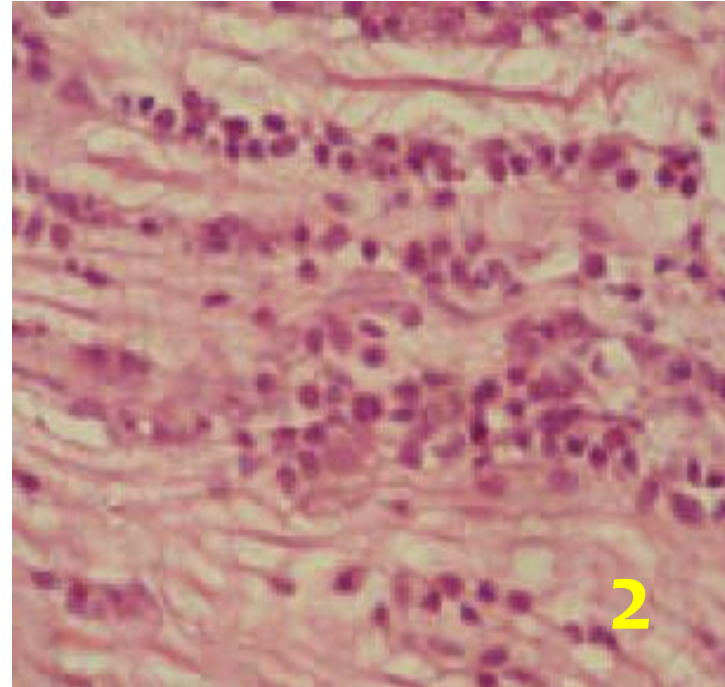
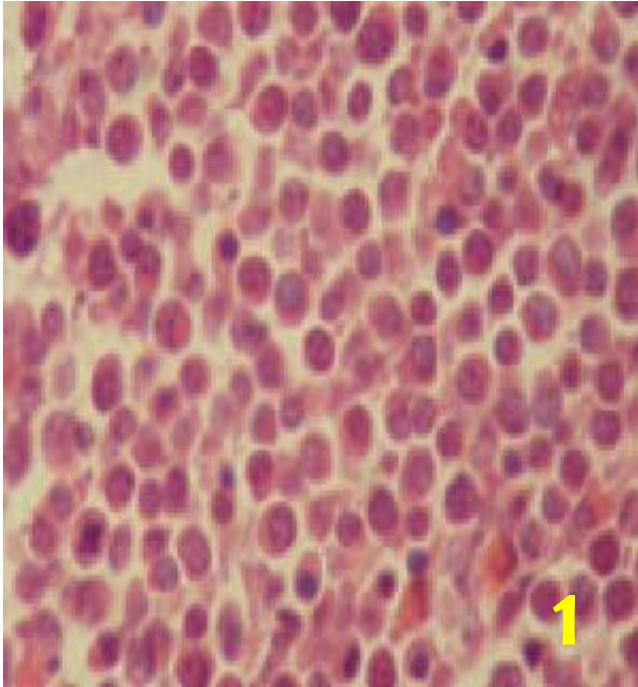


**LL**



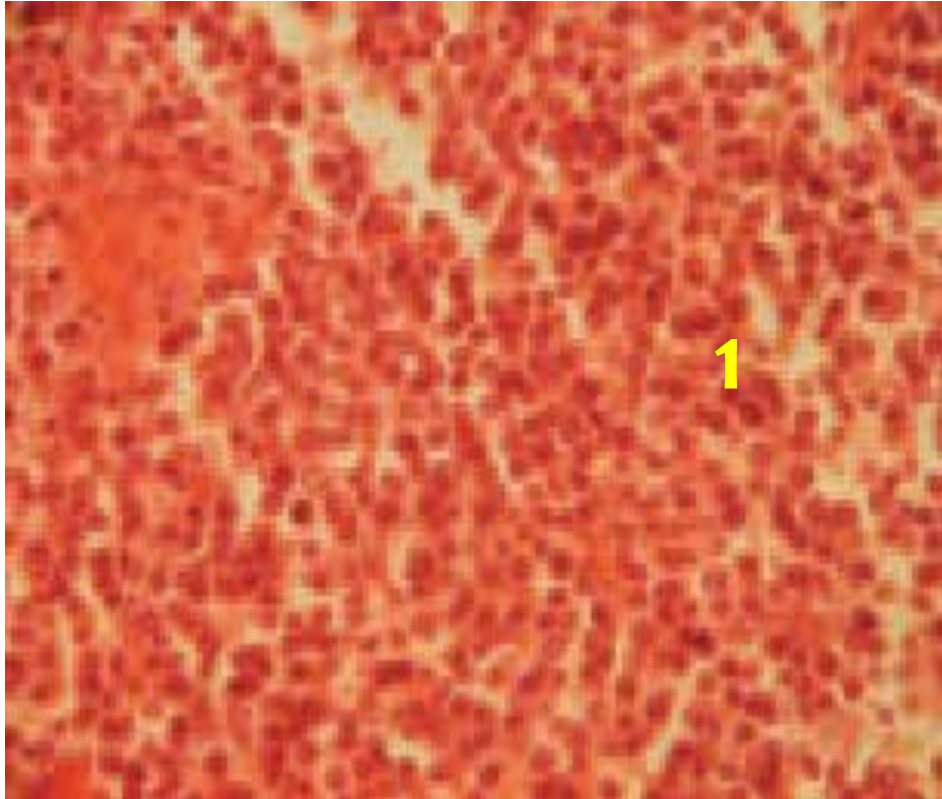


# Histopathology of MD





# Histopathology of LL





## How to Differentiate MD from LL



- Lymphoid leucosis also causes tumors in organs, but does not cause paralysis, i.e. there are no nervous signs and lesions.
- Lymphoid leucosis is usually seen in birds over 20 weeks of age, whereas Marek's disease is commonly seen in younger chickens (less than 16 weeks of age).
- Most deaths from Marek's disease occur between 8 and 20 weeks of age, although in some cases the disease may be seen in birds as young as 3-4 weeks of age or as old as one year of age.
- Marek's disease commonly affects the T-lymphocytes whereas lymphoid leucosis commonly affects B lymphocytes.





# Accurate diagnosis of MD



Must consider the following:

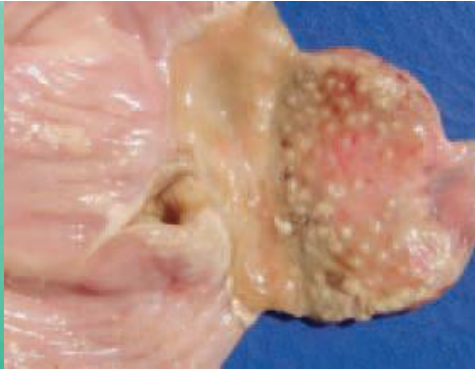
1. **History:**
  - (i) Age of birds affected (<16 wks or more?)
  - (ii) Incidence (>5% or less?)
  - (iii) Morbidity and mortality rates (high or low?)
2. **Clinical symptoms:** Leg and wing paralysis? Eye lesions?
3. **PM lesions-** Involvement of peripheral nerves?, involvement of bursa of Fabricius?
4. Simultaneous lack of alterations in the bursa of Fabricius.
5. **Histopathology:**
  - (i) type and uniformity of lymphocyte cell infiltration.
6. **Virus isolation and serology**



# New Castle Disease



1



2



3



4



# Differential diagnosis of NCD



- Fowl cholera
- Avian influenza
- Laryngotracheitis
- Fowl pox (diphtheritic form)
- Psittacosis (chlamydiosis) (psittacine birds)
- Mycoplasmosis
- Infectious bronchitis
- Pacheco's parrot disease (psittacine birds)
- Fusaritoxicoses



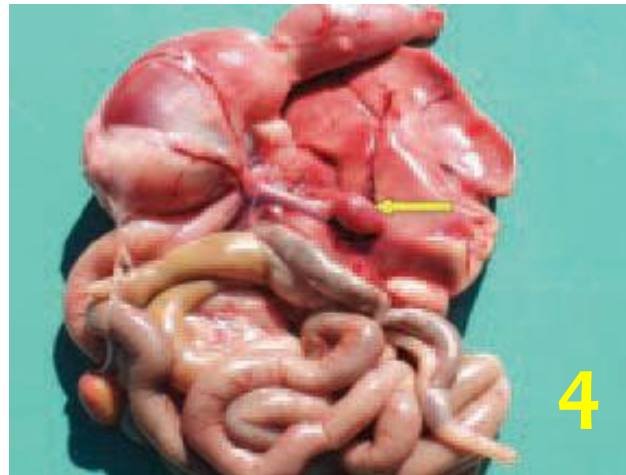
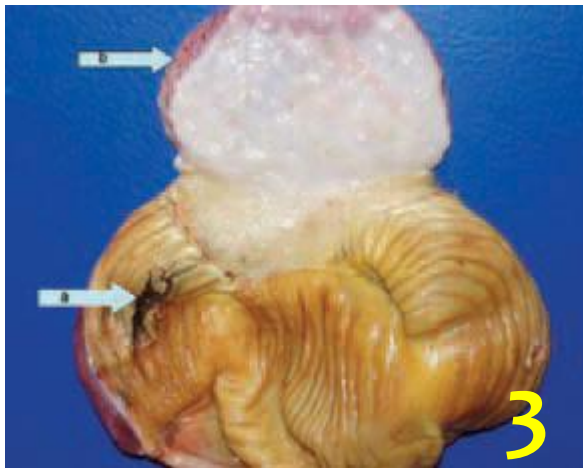
# Diagnosis of NCD



- **Tentative:**
  - History
  - Clinical signs- respiratory and nervous signs
  - PM lesions- not specific or pathognomonic
- **Confirmatory:**
  - Lab isolation and identification of the causative virus
  - Serology- HI and ELISA tests



# Fusaritoxicoses







# Fusaritoxicoses





# Other PM Lesions in Fusaritoxicoses







# Diagnosis of fusaritoxicoses



- The *Fusarium* genus produces numerous mycotoxins, out of which, the most important for poultry pathology are trichothecenes, fumosinins, moniliformin, fusaro-chromanone and zearalenone.
- The *Fusarium* toxins possess a pronounced caustic effect, resulting in necroses and crusts of the buccal mucosa.
- Diagnosis entails the screening of cereals and forages for the presence of some mycotoxins (aflatoxin, T-2 toxin, zearalenone) via ELISA.



# THANK YOU!

