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# POST MORTEM EXAMINATION (BIRDS)-1



# The proper diagnosis of poultry diseases depends on three important factors

1. A systemic plan for examining the bird's body.
2. Identification of vital organs and body structure.
3. Knowledge of disease symptoms and lesions.

- Getting a diagnosis as quickly as possible is of great importance.
- Two categories of problems that require investigation are –
- The P.M. based, laboratory confirmed - Easy and straight forward problems for making diagnosis and prescribe treatment.
- The ‘in – depth’ problem (through investigation) - to find underlying cause of an infectious disease. It is more vague and multifactorial condition. It is to determine origin.
- Investigation of disease involving mortality and morbidity includes- **Case/flock History, P.M. Examination and usually Laboratory Investigation.**
- The best approach is to begin with History.

# FLOCK HISTORY

Poultry diseases must be considered as disease of the flock rather than individual disease. Symptoms in a few individual birds are usually an indication of a more serious flock- wide problem. It is important that an accurate flock history be recorded. The source of many diseases can be determined from an accurate flock history.

- - Start taking history right from the office (Record mortality, Egg production, Hatch etc.)
- - Quietly observe the farm house.
- - Ask question with the people involved.

A complete flock history includes the following:

- - Name and address of the owner.
- - Number of birds in the flock.
- - Breed, strain and age of the birds.

Management information consists of the following;

- - Hatchery source.
- - Type of operation.
- - Feeding programme.
- - A complete vaccination history.

Information on the illness includes the following:

- - The date the illness was observed.
- - Severity and number of birds affected.
- - Number of birds dying.
- - Medication history.
- - Final remarks of disease in previous flocks and any unusual problems or conditions should be included.

# Flock History Performa

- Owner.....
- Address.....Phone no.....
- Number in flock.....Breed.....Age.....
- Hatchery source.....  
Type of operation (floor, cage, range etc.).....
- Feeding program.....
- Vaccination history.....
- Date illness first seen.....
- No. affected by illness.....No.  
Dead.....
- Medication.....
- Symptoms and Remarks.....

# A SYSTEMIC PLAN FOR EXAMINING THE BIRD'S BODY POST MORTEM EXAMINATION

# INTRODUCTION

- Post mortem examination of poultry is an important as a tool to establish the cause of death and to determine the contributing factors.
- All data and results obtained from post mortem examinations can also be used therapeutic and preventive measures.
- It can also be used in policy making.
- The basic principle is same for all animals or birds but difference lies due to the anatomical and physiological difference.
- Necropsy examination of all the species of birds are almost same except a few minor anatomical differences.



# MATERIALS REQUIRED

- ✓ Scissors.
- ✓ Knives.
- ✓ Scalpel or blade.
- ✓ Bone cutter.
- ✓ Forceps.
- ✓ Trays.
- ✓ Hand lens.
- ✓ Bunsen burner or spirit lamp or stove.
- ✓ Swabs.
- ✓ Collection containers
- ✓ Fixatives
- ✓ Glass slides

# NECROPSY PROCEDURE

- ✓ It is imperative to note down the identification of the birds by looking metallic tag number fixed in right and left wings or legs, any colour marks on feathers, age, sex breed and colour along with nutritional status of the birds.
- ✓ Soak the carcass in water and place it on the necropsy table.
- ✓ The external examination of the bird is carried out by seeing both the dorsal and ventral aspect of the skin by stretching the feathers for the presence of ectoparasites, lesions and injury.
- ✓ Keep the bird on its back with wings and legs extended. Abduct the legs by cutting the skin between the leg and the abdomen on each side and breaking open the hip joints and dislocating the head of each femur from acetabulum.
- ✓ Cut the skin between the keel and the vent transversely and peel off the skin over the abdomen and legs.
- ✓ Examine the muscles of the thigh and sternum.

- ✓ Cut open the abdomen by incising the abdominal wall transversely between the keel and the vent and remove the sternum by cutting through the ribs and clipping the coracoid and clavicles with bone cutter.
- ✓ The mouth is opened by cutting through one corner (preferably right side) and the incision is continued through the pharynx the esophagus to open the crop.
- ✓ Remove the stomach and intestine in one piece after cutting through the oesophagus just anterior to the proventriculus and at cloaca and examine the organs beneath.
- ✓ Remove the different visceral organs separately like liver, spleen, kidneys etc. and examine.
- ✓ Examine the surface of each visceral organs and incise for examination of cut surfaces.

- ✓ The nasal cavity is exposed by cutting the beak transversely near its attachment with the skin. With the pointed end of the scissors, incise through the opening on either side to expose the infra orbital sinus and examine the abnormalities therein.
- ✓ Next open the trachea along its whole length
- ✓ By means of blunt dissection free the lungs from the thoracic wall and cut through the dorsal attachment.
- ✓ Expose the brachial plexus and sciatic nerve on both the sides.
- ✓ Open and examine the major joints.
- ✓ Examine the brain by cutting and reflecting the skin over the skull and the upper mandible. Carefully cut the skull and lift it to expose the brain.
- ✓ Record the lesions in the prescribed proforma.
- ✓ After necropsy give a Tentative/confirmative.

# **EXTERNAL EXAMINATION**

# GENERAL BODY CONDITION



## Changes

## Possible Cause

**Emaciation /Dehydration**

**Off-feed; nutritional deficiencies; enteritis; tuberculosis etc.**

**Paralysis**

**Botulism; Marek's disease; arthritis; aflatoxin poisoning; epidemic tremor**



# FEATHERS

Changes	Possible Cause
Moist under wing	Infectious coryza
Loss of feathers	Molting , Lice; nutritional deficiency- methionine
Deposits at base of shafts	Lice or mite eggs



# Skin

Changes	Possible Cause
Nodules, mainly legs	Marek's disease
Nodules over vent	Flukes (rare)
Moist, necrotic, edematous	Necrotic dermatitis, exudative diathesis
Darkened, purplish	Erysipelas; fowl cholera
Crusted areas	Erysipelas; scab; gangrenous dermatitis
Gangrenous, green	Haemorrhage; arthritis; gangrenous dermatitis
Vent irritated	Northern fowl mite; lice (occasionally)
Pale	Anaemia; nutritional deficiencies-iron, copper, vitamin B 12



# Head

<b>Changes</b>	<b>Possible Reason</b>
<b>Swollen, puffy</b>	infectious coryza; injury; Newcastle disease
<b>COMB</b>	
<b>Mottled, red and white margins</b>	Frozen
<b>Eruptions, nodules</b>	Fowl pox
<b>White, scaly, powdery</b>	Favus

# EYES

<b>Changes</b>	<b>Possible Cause</b>
<b>Watery</b>	Infectious coryza
<b>Blindness</b>	Fowl pox; aspergillosis; Arizona Paracolon; paratyphoid
<b>Watery, red, inflamed, closed</b>	Laryngotracheitis; ammonia burn; Newcastle disease; nutritional deficiency-vitamin A
<b>Cataracts</b>	Epidemic tremor
<b>Crusts on eye lids</b>	Nutritional deficiency-vitamin A; fowl pox
<b>Pupil irregular, blindness</b>	Marek's disease

# SUBCUTANEOUS TISSUE

Changes	Possible Cause
Small size nodules	Subcutaneous mite (rare)
Excess Fluid	Salt poisoning; edema; exudative diathesis anaemia
Air under skin	Ruptured air sac; injury or infection of skin

## RIBS

Changes	Possible Cause
Beaded, crooked, nodular	Rickets (vitamin D, calcium or phosphorus deficiency)

# Muscles

Symptom	Possible Cause
Congested (as though cooked)	Septicaemic disease; improperly bled
Haemorrhages	Haemorrhagic anaemia; erysipelas, crotalaria; mycotoxicosis; other poisonings; inclusion body hepatitis; infectious bursal disease; injury
Dehydrated	Acute lack of water; coccidiosis
Tumors	Marek's discasc

# LEGS

<b>Bone bends</b>	<b>Nutritional deficiency-vitamin D</b>
<b>Bone thickened, enlarged</b>	Lymphoid leucosis (osteopetrosis); tenosynovitis; nutritional deficiency - zinc
<b>Joint swelling</b>	Infectious synovitis; paratyphoid; pullorum; nutritional deficiency-zinc; staphylococcosis; tenosynovitis; arthritis
<b>Tendon at hock displaced</b>	Perosis (nutritional deficiency-choline or manganese)

# INTERNAL EXAMINATION

# Trachea

Symptom	Possible Cause
Free blood or cheese-like linings	Newcastle disease
Mucus with some blood	Chronic respiratory disease
Wart-like bodies, upper part	Fowl pox
Inflamed	Adeno virus infection

# Air sac

Symptom	Possible Cause
Foamy, purulent, thickened	Colibacillosis; chronic respiratory disease; Newcastle disease; Fowl cholera
Moldy, nodules	Aspergillosis
Foamy, frothy	Infectious bronchitis
Small nodules	Air-sac mite (rare) Air-sac disease; infectious coryza
Cloudy	Laryngotracheitis; influenza; Newcastle disease



# LUNGS

Symptom	Possible Cause
Yellow nodules	Aspergillosis
Consolidated	Pneumonia

# Crop

Symptom	Possible Cause
White cheese-like growth	Moniliasis (fungus infection)
Dry or slightly moist feed	Acute lack of water (dehydration)
Distended with fluid	Drop crop; feather eating
Lining thickened	Capillaria

# Proventriculus

Symptom	Possible Cause
Swollen, enlarged	Necrotic enteritis
Haemorrhagic	Newcastle disease , spirochaetosis, avian influenza

# Gizzard

<b>Symptom</b>	<b>Possible Cause</b>
<b>Excess fiber, grit, litter, etc</b>	Impaction
<b>Erosion of lining</b>	Nonspecific enteritis; necrotic enteritis; haemorrhagic anaemia; normal in very young bird, fish meal.
<b>Muscle degenerated</b>	Selenium deficiency
<b>Lining will not peel</b>	Necrotic enteritis

# Intestine

Symptom	Possible Cause
Elongated, white worms	Ascarids
Thickened wall, mucus	Capillaria worms
Pin point haemorrhages	Coccidiosis; agonal haemorrhages
Blotchy haemorrhages	Haemorrhagic anaemia , clostridia
Red and white dots	Necatrix coccidiosis
Ulcers	Ulcerative enteritis
Collapsed, glue-like contents	Heat stroke; acute lack of water
Bloody	Haemorrhagic enteritis (turkeys); necatrix coccidiosis; Newcastle disease
Small white bodies, upper wall	Acervulina coccidiosis
Green contents	Low feed intake and bile not diluted
Duodenum red and velvety	Generally normal
Thick, swollen and haemorrhage	Coccidiosis; enteritis
Turkish towel effect, brown	Necrotic enteritis; coccidiosis

# Caeca

Symptom	Possible Cause
Blood or hard cores	Caecal coccidiosis
Thickened, ulcerated, enlarged cores	Black head
Excess fluid	Blue comb disease (poults)
Short, threadlike organism	Caecal worms
White cores	Coccidiosis; black head, Salmonellosis
Ulcers	Ulcerative enteritis

# Ovary

Symptom	Possible Cause
Egg follicles hard shrunken	Pullorum; typhoid; unknown
Broken egg yolks	Bluecomb disease, fowl cholera
Cauliflower-like growth	Marek's disease

## BURSA

Symptom	Possible Cause
Markedly enlarged	Infectious bursal disease

# Heart

Symptom	Possible Cause
Thickened, fibrinous, yellowish	Chronic respiratory disease; fowl cholera; colibacillosis
Fluid in heart sac	Aanemia; haemorrhagic anemia; aflatoxin; other poisonings
Haemorrhages	Fowl cholera; typhoid erysipelas haemorrhagic anemia
Heart enlarged	Round heart disease; ascites



# Liver

Symptom	Possible Cause
Fibrin on surface	Chronic respiratory disease; fowl cholera; colibacillosis
Necrosis with mottling	Vibronic hepatitis; blackhead; inclusion body hepatitis
White or yellow spots	Fowl cholera; pullorum; ulcerative enteritis; adenovirus infection
Swollen, darkened	Fowl cholera; typhoid; erysipelas; septicaemia, toxemia; inclusion body hepatitis
Yellowish, sandy nodules	Tuberculosis
Enlarged with or without nodules	Marek's disease lymphoid leucosis
Round, depressed ulcers	Blackhead
Green	Staphylococcosis; blockage of bile
Yellow	Fatty liver hemorrhagic syndrome; normal storage; aflatoxicosis

# Kidney

Symptom	Possible Cause
Swollen, urate deposits	Infectious bronchitis (Holte or Grey strain) infectious bursal disease; nephrosis
Sacs filled with fluid	Cysts (not infection)
Mottled	Nephrosis; infectious bronchitis (Holte or Grey strain)

# Body cavity

Symptom	Possible Cause
Excess of fat	Fatty liver hemorrhagic syndrome; management problems; aflatoxins, excess dietary energy
Large blood clot	Aortic rupture; fatty liver hemorrhagic syndrome
Straw colored fluid	Ascites (not a disease, but often associated with diseases as lymphoid leucosis).
Milky fluid	Peritonitis