



Tikrit University
College of Veterinary Medicine

Metabolic and management diseases in broiler and layers

Subject name: Poultry diseases

Subject year: 2024-2025

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Lecturers link

Metabolic and poor management diseases that affected Layers and Broilers

The chickens (layers and broilers) affected by some of noninfectious disorders (Metabolic and mangemental diseases) which causes economic losses in poultry industry , these diseases are:

- 1- Calcium tetany
- 2- Fatty liver hemorrhagic syndrome (FLHS)
- 3- Gout
- 4- Cannibalism
- 5- Ammonia exposure

1- Calcium tetany

Definition:

Its caused by defect in calcium metabolism which lead to decrease of calcium level in the blood, at result the muscle contract sharply and fails to relax , thus causing the body to stiffen followed by death.

Important of calcium

- 1- Skeleton development.
- 2- Egg shell formation
- 3- Absorption of Vit. B12.
- 4- Muscle contraction.
- 5- Nerve transmission.
- 6- Activate various enzymes.
- 7- Low Ca²⁺ concentration in the blood stream lead to:**
 - a) Cause rickets in young chicken.
 - b) Osteomalacia in old layer.
 - c) Calcium tetany in broiler breeder.

Synonyms :

Hypocalcaemia, Osteoporosis.

The factors which lead to hypocalcaemia:

- 1) Genetics (highly production).
- 2) Early production (16 – 18 weeks age).
- 3) Heat stress.

Clinical signs:

- 1) Lethargy and panting appear in the infected birds.
- 2) Cyanosis of combs and wattles .
- 3) Paralysis and death the infected birds.
- 4) Asphyxia.
- 5) Affected female more than male.
- 6) Mortality up to 1-2 % / week for 1-2 weeks.

P.M. lesions:

- 1- Haemolytic ovary.
- 2- Congested of the lungs .
- 3- Deformity in shell egg caused by deformity in the glands which responsible for egg shell secretion in the oviduct.

Diagnosis:

- 1- Bacterial culture.
- 2- PCR.

Treatment:

- 1) Calcium supplementation:
Oyster shell / large particle with fine limestone 2.5- 5 g Calcium / hen / day.
- 2) Vit. AD3 E and C in drinking water.
These treatment should be suspended for 3 days and then stop 3 days, then repeat. Severe cases require 2- 3 weeks treatment.

Prevention:

- 1- Good management .
- 2- Feeding the chickens in balanced diet.
- 3- Use Vit. D3 with Vit. C in drinking water.

2. Fatty liver hemorrhagic syndrome (FLHS)**Definition:**

It's metabolic disease characterized by a fatty texture accompanied by hemorrhages in the liver. Its occurs particularly in hot weather, with the drop in egg production in the affected flock, at last death the bird.

Causes:

1. Excessive consumption of high-energy diets in birds, which leads to fattiness.
2. Deficiency of nutrients that mobilize fat from the liver, such as choline.
3. Stress, High temperature, toxins and high egg production.

Clinical signs:

1. The mortality is between 25 to 50%
2. Sudden drop in egg production.
3. Pale combs and wattles.

P.M. lesions :

The liver greasy texture ,enlarged, pale orange, soft, friable and easily fractured

Diagnosis:

Flock history and postmortem findings are usually adequate for field diagnosis.

Treatment:

Addition of vitamin E, choline chloride and vitamin B 12 for diet.

Control:

1. Decrease the high-energy source on the diets
2. Addition of choline to the feed.
3. Avoid use of Moldy feed in the poultry diets.

3-Gout**Definition:**

Avian species infected by renal dysfunction which lead to failure clearance of uric acid from the blood, which results in hyperuricemia with precipitation of insoluble products within the kidney and other viscera. Found two different forms that differ in etiology, morphology and pathogenesis. These forms are visceral gout and articular gout.

A. Visceral Gout

Deposition of uric acid crystals on visceral organs like kidney, liver, heart and gut. The acute form is more common type of gout reported in poultry.

Causes:

1. Obstruction of ureters.
2. Dehydration – most common cause.
3. Renal damage – kidney necrosis.
4. Vitamin A deficiency.

Clinical signs and lesions:

The urate deposits appear as white chalky coating on the viscera surface with Kidney swollen, mottled and grayish.

Diagnosis:

This form of the gout characterized by precipitation of urates on the surfaces kidneys, liver, heart, mesenteries, air sacs, peritoneum and muscles like chalk white powder.

B-Articular Gout

Articular gout results from the deposition of uric acid crystals in the synovial fluid and synovial membranes, resulting in joint inflammation

Causes:

1. This form may occur from genetic defects in metabolism of uric acid.
2. It may be a result of feeding the poultry by high protein diets, which lead to result in excess uric acid production.
3. Affected chickens have a defect in kidney functions

Clinical signs and lesions:

Affected birds suffer from lameness and an inability to bend the toes.

The disease is characterized by tophi - deposits of urates around joints, especially the feet which cause joints are enlarged and feet are deformed.

Diagnosis:

On opening the joints, periarticular tissue is white due to urate deposition, and semifluid deposits of urates are seen.

Treatment and Prevention :

Visceral gout is prevented by feeding a correctly balanced diet and providing adequate water for chickens.

4.

Cannibalism**Definition:**

Cannibalism is a vice of Chickens, Turkeys and other birds which reared in crowded area. Its characterized by loss of tissues from pecking and plucking of feathers , pecking of vent. It may be cause increase the mortality rate within the flock when because the contaminated wounds

Cause

1. Overcrowding
2. Insufficient feeders, waterier or nesting space.
3. Dietary deficiencies.
4. Incorrect lighting (Bright lighting).
5. Prolapse the part of oviduct.

Clinical signs and P. M. lesions:

1. Toe pecking in chicks.
2. Anemia, blood stained feathers and affected body areas.
3. Pecking at feet (especially young chicks) and vents (adult layers and turkey poults 8-12 days old).

Diagnosis:

Clinical signs and P.M. lesions.

Treatment:

1. Supplying mash diets rather than pelleted feed.
2. Breeding chickens on floor instead of cages.
3. Reducing light intensity.
4. Avoiding overcrowding

Control:

1. Remove victims of cannibalism .
2. Dim lights to a lower intensity of between 5 and 10 lux .
3. Add the feed and water in Poultry flock by additional amount .
4. Use an antibiotic wound spray on the cloacal prolapse of hens (in small flock) .
5. Beak cutting.

5-Ammonia exposure:**Definition:**

Ammonia is a gas highly soluble in water when it comes in contact with the inner lining (mucous membrane) of the respiratory tract following inhalation, or in contact with the eyes and produces a highly irritating chemical substance is called ammonium hydroxide, which produces very damaging.

Harmful Effects of Ammonia:

1. Ammonia damages the respiratory system and thus predisposes to infections, such as E. coli infection and Infectious Coryza
2. Decreases growth rate.
3. Ammonia also reduces body weight and feed efficiency.
4. Ammonia reduces Egg production , sometimes causes 'ammonia blindness' in broilers.

Clinical signs:

1. Affected birds keep their both eyes closed
2. The eyelids are swollen .
3. Affected birds do not eat and become weak.

Prevention:

- 1 . Ensure proper ventilation.
2. Ensure proper litter management.

