



Tikrit University
College of Veterinary Medicine

Mycotoxicosis

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Lecturers link

Mycotoxicosis

Definition:

Mycotoxicosis are poisoning resulting from consumptions of toxic chemical produced by growing fungi. Found more than 300 mycotoxins are identified, only three are known economic important in birds and other animals such as **Aflatoxin, Ochratoxin and Trichothecenes (T2).**

Predisposing factors:

1. Sudden and heavy rain falls.
2. Insect damage grains.
3. Moisture content > 12%.
4. Improper and inadequate storage the harvest ingredients.

1-Aflatoxin

Definition:

Aflatoxins are highly toxic and carcinogenic mycotoxins produced by *Aspergillus spp* which effect on Poultry feeds and ingredients . Aflatoxin are may be found in food normally but are sensitive to oxidizing agents such as hypochlorite. Aflatoxin are designated by produce their blue (B) or green(G) color when it reaction with fluorescent light . Aflatoxin B1 is the most toxic, and hepatotoxicity in all animals.

Etiology:

This toxin produced the majority by *Aspergillus flaves* and gives its name, but Aflatoxin is also produced by *Aspergillus parasiticus*. Naturally occurring Aflatoxin B1, B2, G1 and G2, but Aflatoxin B1 is usually in the highest concentration.

Susceptibility:

Young poultry are more sensitive to Aflatoxin than are adults.

Clinical signs:

1. High level of toxins causes sudden mortality without any symptoms.
2. Low level of toxins causes depressed growth and immunosuppression.
3. Reduced fertility and hatchability
4. Wet litter.
5. Poor shell quality.

Gross lesions:

1. Hydropericardium and Ascites.
2. Liver, spleen and kidney are congested and enlargement.
3. Petechial haemorrhages are also seen on subcutaneous tissue, muscles and viscera.
- 4- The liver is pale yellow in color and has a greasy texture with a swollen gallbladder.
5. We can see atrophy in the bursa of fabricius, thymus and spleen.

Histopathological lesion:

1. Appear the fatty changes in the Cytoplasm of hepatocytes and massive necrosis, accompanied by hemorrhage.
2. Membranous glomerular lesions occurred in the kidneys of ducks and goslings.

2. Ochratoxicosis

Definition:

Ochratoxicosis occurs more frequently in poultry in Iraq and more lethal based because its highly toxicity. Ochratoxin A and B from occur naturally, but Ochratoxin A is the most toxic and produced in greater quantities.

Etiology:

This toxin produced by *Aspergillus ochraceus* and *Pencillium veridicatum* .

Clinical signs:

1. Depression, dehydrated and often polyuria and die duo to acute renal failure.
2. Poor feathering.
3. Decreased in egg production with delayed sexual maturity and hatchability.

Gross lesions:

1. Kidneys and liver are swollen with deposition the urate crystals on surface of viscera and joints.
2. This toxin lead to decrease in bursal and thymic size which lead to immunosuppression.

Histopathological lesions:

- 1- Acute tubular nephritis with present focal necrosis in tubular epithelium , uratecasts, and heterophilic inflammation.
- 2- Present focal necrosis and cytoplasmic vacuolation in hepatocytes which contain glycogen
- 3- Thickening of glomerular basement membranes

3.

Trichothecenes Mycotoxicosis**Definition:**

Trichothecenes Mycotoxicosis, occurs frequently in commercial poultry. This toxin produced from the fungi which grow at various temps, but toxin production is highest in cold(<20°C).

Etiology:

Trichothecenes Mycotoxicosis produced by *Fusarium* *Stachbotrys*. *Fusarium* are cold weather molds. Contamination the wheat and stored corn, and soybeans by this toxin in the wintered is common.

Clinical signs:

1. Ulcer at the commissures of the mouth corners , the hard palate for the beak and the dorsal surface of the tongue.
2. Polyuria
3. Decreased feed intake lead to decreased weights.
4. Depressed egg production and Poor egg shell quality with More egg breakage
5. Rickets.
7. Depressed hatch.

Gross lesions:

1. Thick crusts accumulate along the interior margin of the Oral.
2. Enlarged with pale the Kidneys .
3. The bone marrow became pale or yellow and the liver become yellow in color.
4. Immunosuppression due to atrophy of the spleen ,bursa and thymus
5. Enteritis and necrosis with present hemorrhages in musculature and viscera.

Histopathological lesions:

- A. Found the mucosal necrosis ,ulceration, and bacterial colonies in gut .
- B. Infiltration of inflammatory cells.
- C. The hepatocytes suffer from necrosis and hemorrhage with show inflammation and necrosis in the gall bladder.
- D. Necrosis of intestinal epithelium was followed by shortening of villi.
- E. Decrease in WBCs and RBCs numbers

Diagnosis of Mycotoxicosis:

- 1.Clinical signs, gross lesions and histopathological changes.
- 2.Identification of a level of toxin by ELISA tests.

Treatment:

Sodium aluminosilicates added to poultry rations at 0.5% for bind with Aflatoxin and prevent its absorption.

Prevention:

- 1.Keep the moisture of grains <12%.
- 2.Don't store broken or insect damaged grains.
- 3.Sun drying is the best method to prevent mold growth.
- 4.Store the feed in well ventilated dry place.
- 5.Should be control for insect and rodent.