Chicken Infectious Anemia

- First identified in Japan in 1979. It was called the chicken anemia agent (CAA) and later referred to as chicken anemia virus (CAV).

- The disease is characterized by aplastic anemia, generalized lymphoid atrophy with concomitant immunosuppression, and subcutaneous hemorrhage.

- Primarily causes T-cells suppression.
Chicken Infectious Anemia

- It is often complicated by secondary viral, bacterial, or fungal infections.

- The disease produced in young chickens most frequently involves severe bone marrow depletion with a reduction in hematocrit values.

- It plays a major role in a number of multifactorial diseases associated with hemorrhagic syndrome and aplastic anemia.
Synonyms

Hemorrhagic syndrome
Anemia-dermatitis
Blue-wing disease
Etiology

- Circovirus – a single stranded, circular DNA virus.

- There is only one serotype but there are variations in pathogenicity.
Method of Spread

- Primarily vertical transmission from breeder flocks which become infected during lay.

- The virus is not transmitted from hens which have cleared the infection during the rearing period.

- Lateral spread usually results in subclinical disease.
Period of Incubation

- Ten to 14 days in antibody negative hens.

- In natural outbreaks, peak mortality in broilers is commonly observed between 17 to 24 days followed by a second wave of increased mortality between 30 to 34 days of age.
Mortality

- Clinical CAV rarely occurs, but occasional outbreaks are generally devastating.

- Mortality is usually 5 to 10% although it has been reported up to 60% in some cases.
Clinical Signs

- Anemia is the only specific sign with hematocrit values ranging from 6-27%.
- Normal hematocrit value is 35%.
- Depression, paleness, and anorexia are often seen.
- Lesions on the wing (blue-wing) result from secondary bacterial infections leading to gangrenous dermatitis.
Postmortem Lesions

- Hemorrhages can be observed in the skin and musculature. The bone marrow is pink to yellow in color.

- Thymic atrophy is obvious. Changes in the bursa of Fabricius are less obvious.
Pale bone marrow
“Blue Wing”
Thymic atrophy
Histopathology

- Bone marrow depletion; erythrocytes, thrombocytes, and granulocytes are replaced by adipose tissue.

- Other lymphoid tissues including spleen and bursa of Fabricius are also atrophic but to a lesser degree and for a shorter duration.
Diagnosis

- Flock performance history, signs, postmortem lesions, and the presence of other related diseases such as gangrenous dermatitis, and hemorrhagic syndrome.

- Low hematocrit values.
Diagnosis

- Virus isolation from infected livers. Inoculate the virus into susceptible day-old chicks.

- Follow with virus neutralization using MSB1 cell culture to detect seroconversion.

- Indirect FA or ELISA tests are also available.
Prevention and Control

- Infection and seroconversion of breeder flocks during the rearing phase.

- Monitor for the presence of antibodies at 10-12 weeks of age.
Prevention and Control

- Artificial exposure is accomplished by the transfer of contaminated litter.

- A commercial vaccines has recently been approved for use in the United States.
This vaccine is given via the wing web stab between 10 and 18 weeks of age. It should not be administered later than 6 weeks before the onset of egg production.