

Infectious Bursal Disease

(GUMBORO OR IBD)

CLASSIC:

- Acute, highly contagious viral disease of young chickens characterized by edema and swelling of the bursa of Fabricius followed by hemorrhage with vent picking, diarrhea, ataxia and mortality in 3 to 6 week old birds.
- This form can result in high mortality.
- Infection prior to 3 weeks of age results in immunosuppression and bursal atrophy due to destruction of undifferentiated lymphocytes.

Infectious Bursal Disease

(GUMBORO OR IBD)

VARIANT:

- Causes no obvious clinical disease but produces severe immunosuppression with bursal atrophy regardless of age of infection.

Etiology

- IBD virus is a birnavirus – a double stranded RNA virus.
- Variant viruses have been described in Delmarva and other broiler production areas. These variants do offer some cross protection with classic viruses, but not visa versa.
- IBD is highly contagious and very difficult to remove from a house. It tends to reoccur on the same farm.
- Virus is very hardy and resistant. It survives for long periods (at least 6 months) in poultry houses even where thorough cleaning and disinfection procedures are followed.

Etiology (Cont.)

- The bursa of Fabricius is an immune organ that produces B lymphocytes which migrate to secondary immune organs (cecal tonsil, Harderian gland, etc.) for the purpose of antibody production.
- Embryos are immunocompetent by 18 days and B-cells begin to leave the bursa at this time. However, full B-cell production peaks at 3 weeks and this is when the birds are most susceptible to the virus and classic IBD infection.

Incubation Period

48-72 Hours

**Hemorrhaging in the bursa is evident
within 3 days of infection.**

Course Of Disease

5-7 Days

Mortality

Broilers 0-20%

Leghorns – 5-50%

Methods of Spread

Contaminated feed, water, servicemen
and trucks

Signs

CLASSIC:

- Occurs in broilers at 3-6 weeks of age
- Depression, ataxia and tremors
- Vent picking
- Diarrhea and dehydration
- Mortality

VARIANT:

- Inapparent infection
- A variety of other disease problems

Depressed Chicks



Diarrhea



Vent Picking



Comment

The Classic form of this disease is rarely seen today. Birds infected with variant viruses and birds infected previous to 3 weeks of age may not show clinical signs.

Postmortem Lesions

CLASSIC:

- Enlarged edematous bursa of Fabricius followed by bursal atrophy.
- A gelatinous film covers the exterior of the bursa.
- A cheesy core may be found in the bursa.
- Kidneys are swollen and filled with urates.

Postmortem Lesions Cont.

- Extensive intramuscular hemorrhage on the medial surface of the thigh.
- A rachitic-like condition sometimes seen.

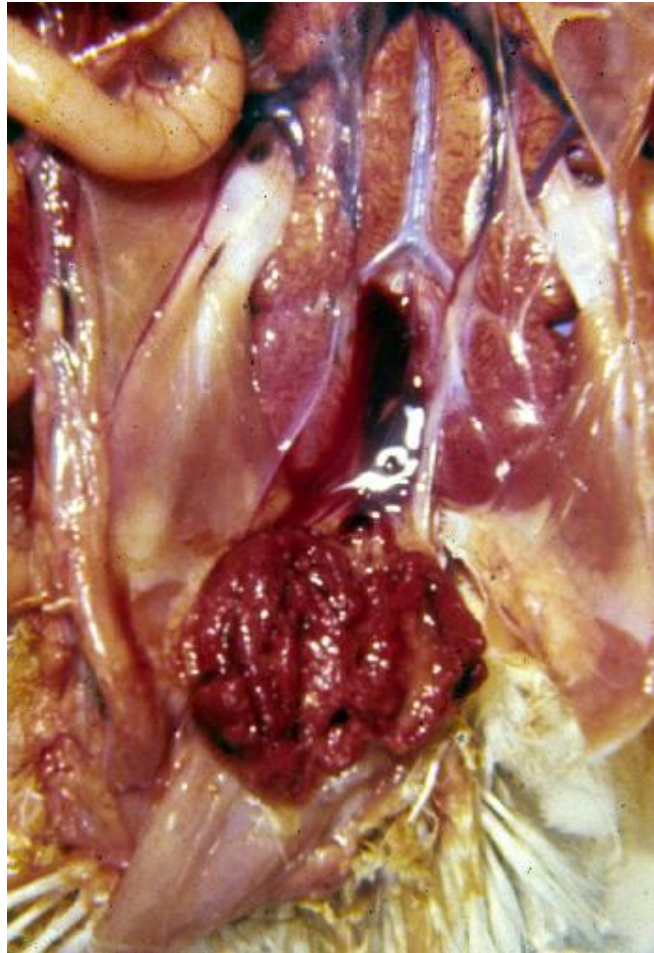
VARIANT:

- Small, atrophic bursa of Fabricius.

Atrophy



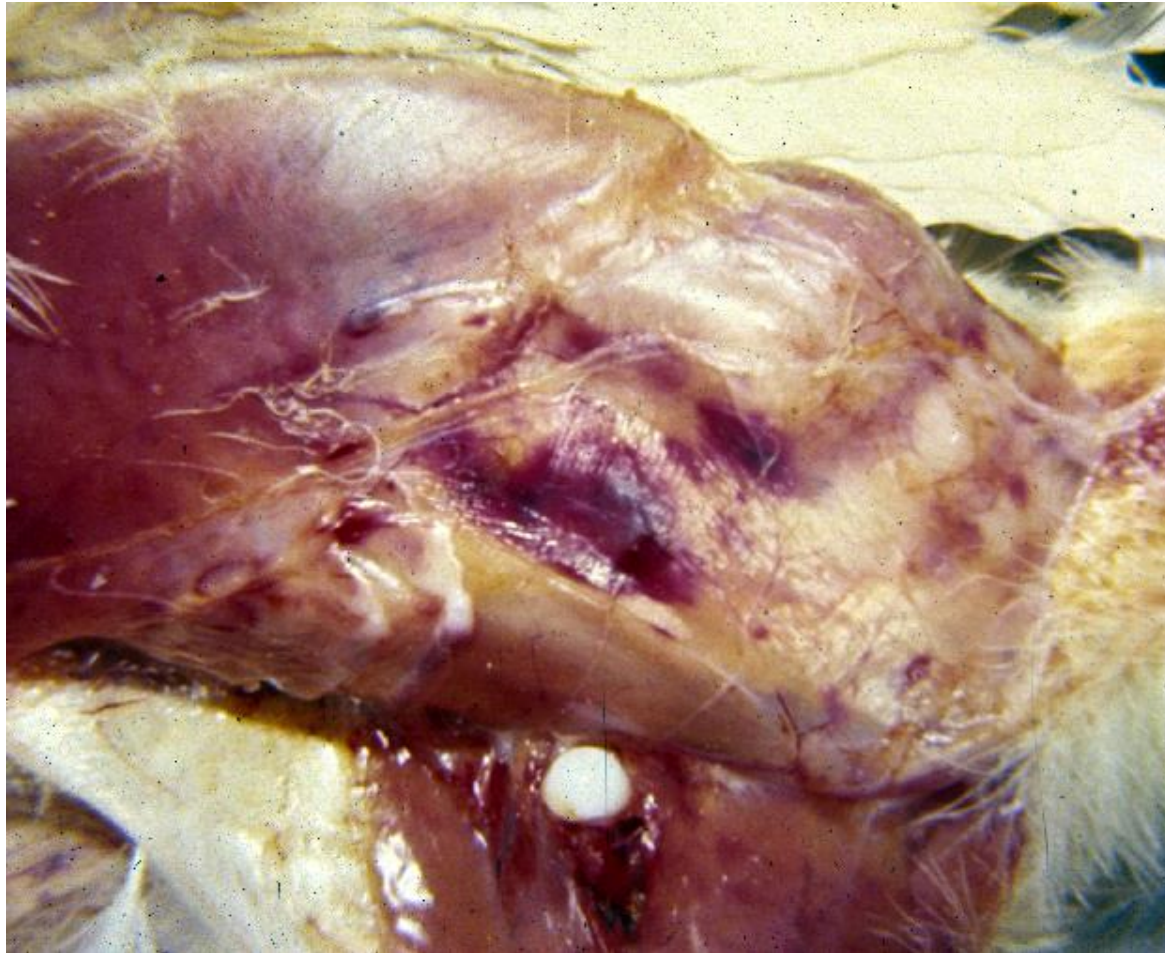
Hemorrhagic Bursa



Edema, hemorrhage



Muscular Hemorrhage



Pale Kidneys



Comment

Birds infected with variant viruses and birds infected previous to 3 weeks of age may have bursal atrophy without other lesions.

The variant virus is different from the classic IBD. It causes bursal atrophy at any age but the later the infection occurs, the less immunosuppression occurs. Atrophy may be transient because many B-cells may have already migrated to populate secondary lymphoid organs.

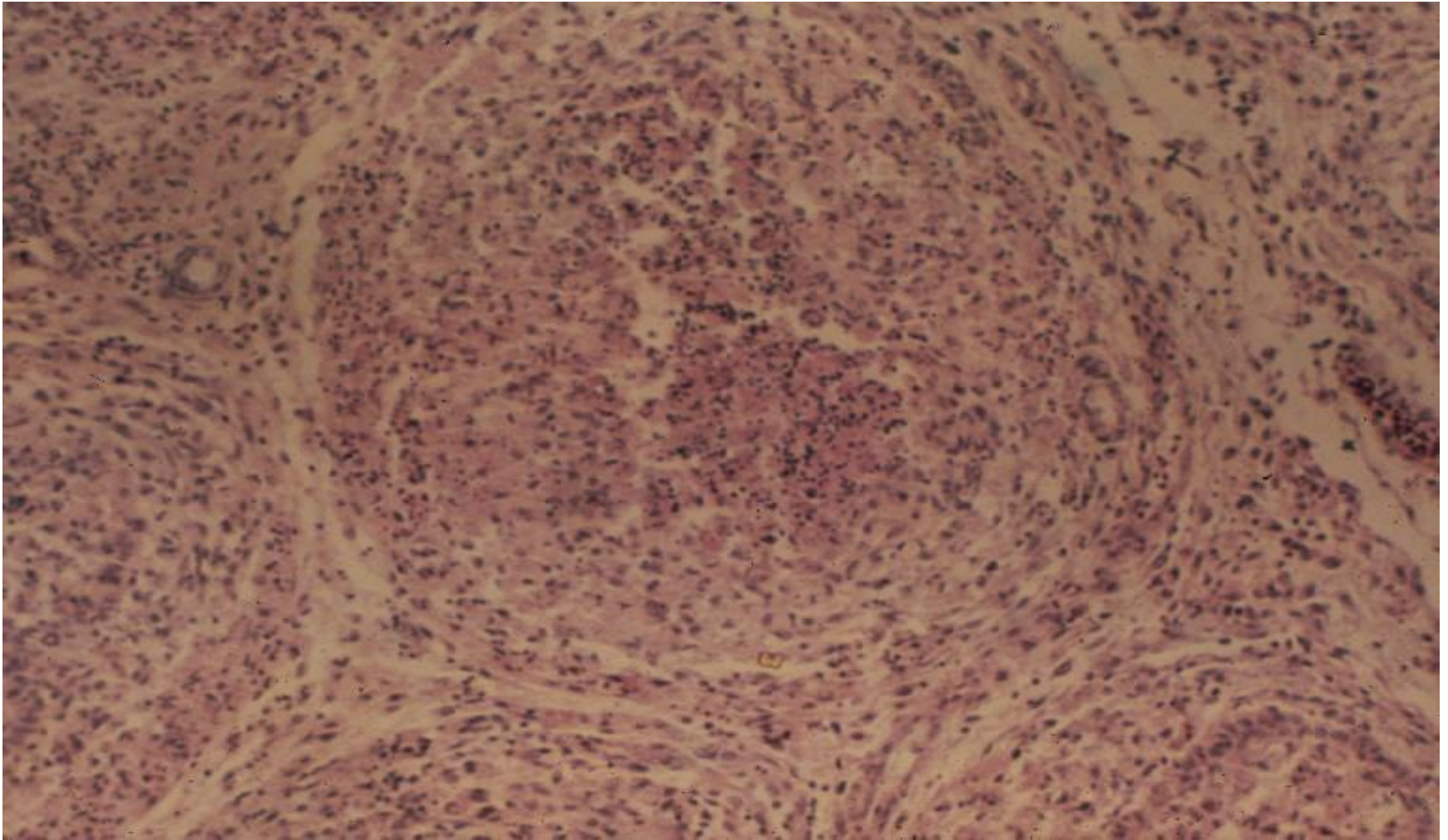
Diagnosis

- Postmortem lesions
- Histopathology
- Viral isolation – bursa, cecal tonsils, spleen
- Serology – despite the destruction of antibody producing cells, titers to IBD will be high. This test detects antibody for the classic IBD so won't be as helpful to detect infection with a variant virus.

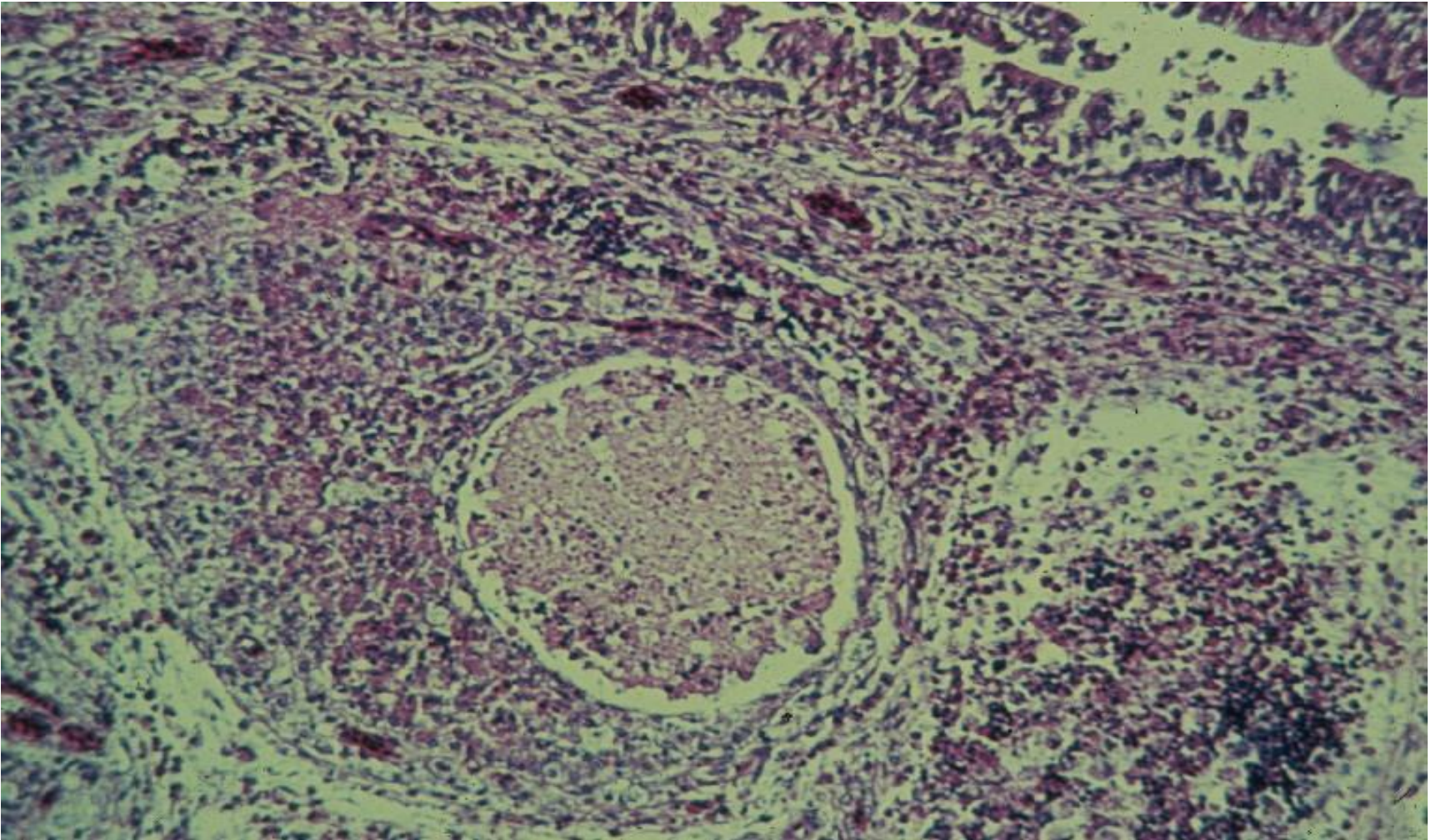
Normal



Necrosis, loss of lymphocytes



Atrophy



Prevention

VACCINATION

Once on farm, the disease tends to reoccur. It cannot be eradicated. To determine the effectiveness of the vaccine program, evaluate bursas at 21-28 days for the degree of atrophy.

Live Attenuated

- In broilers and as a primer for killed vaccine. Live vaccines come in mild, intermediate, and hot forms. The vaccine of intermediate virulence is most commonly used. Bursal derived vaccines are very expensive (\$100/1000 doses compared to \$40/1000 doses) but they have high antigen titers. The virus is harvested from infected bursas

Killed in Oil

- Breeders at 12-18 weeks of age.

Prevention Cont.

Isolation and strict sanitation. Organic iodine disinfectants help. This disease is usually less of a problem in breeders due improved biosecurity and sanitation.

Maternal antibody from the breeder hen will protect the chick for the first 2 weeks of life. This antibody protects more thoroughly against disease than do many others. The half-life of the passive antibody is 4-5 days and will be completely gone by 3 weeks of age.