

# MARBLE SPLEEN DISEASE OF RING-NECKED PHEASANTS

Slide study set # 17

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Marble spleen disease (MSD) is a contagious disease of confinement-raised pheasants. It has been a significant cause of mortality in many areas of the United States, Canada, and Europe during the last 30 years. Marble spleen disease is caused by a type II avian adenovirus. The type II adenoviruses include marble spleen disease virus of pheasants, hemorrhagic enteritis virus of turkeys, and splenomegaly virus of chickens, which are morphologically and serologically indistinguishable. However, they are serologically unrelated to type I adenoviruses. MSD affects pheasants between 2 and 8 months of age. The virus is transmitted laterally, most likely through ingestion of material contaminated by feces. Pheasants are frequently found dead without any previous clinical signs. Mortality varies from 5% to 15% of the flock. The course of a natural outbreak is generally 10 to 14 days.

At necropsy, the spleen and lungs are the only organs with gross alterations. The spleen is markedly enlarged and mottled. The lungs are heavy and edematous. Microscopically, the spleen has marked reticuloendothelial cell hyperplasia and characteristic intranuclear inclusions.

There is no specific treatment for MSD-affected birds. Antibiotics to prevent secondary bacterial infections, reduction of bird density, and strict sanitation to prevent further virus spread may help to limit mortality. The first effective vaccines against MSD were developed from splenic extracts from birds infected with either MSD or hemorrhagic enteritis. More recently, several commercial vaccines based on cell-culture-propagated virus have become available.

Since ring-necked pheasants are an important captive-reared game bird species, this program was prepared to summarize current knowledge on MSD to assist avian diagnosticians with recognition and diagnosis of the disease.

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## ACKNOWLEDGMENTS

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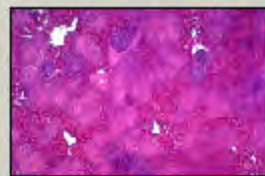
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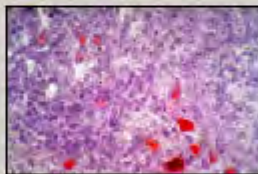
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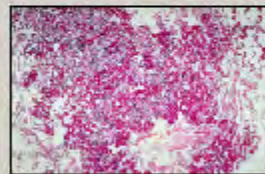
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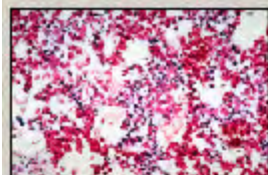
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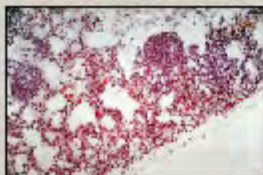
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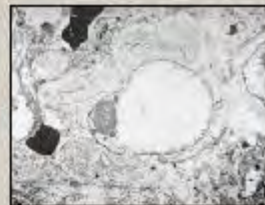
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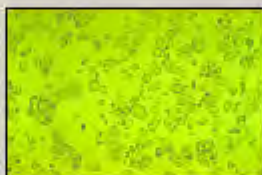
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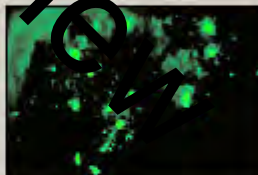
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**SLIDE 1.** A male ring-necked pheasant cock in breeding plumage. Young adult pheasants are generally affected by MSD between 2 and 8 months of age. Respiratory distress is often the only clinical sign preceding peracute death. Mortality rate in naturally occurring outbreaks ranges from 5 to 15%, and the course of the disease varies from 10 to 14 days. Marble spleen disease has been reported only in intensive captive-rearing operations. The disease has not been detected in wild birds.

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**SLIDE 2** Four spleens from ring-necked pheasants. The 3 on the right are from birds infected with MSD virus and are 2 to 3 times as large as the spleen from a non-infected bird (on the left).

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