Avian Histopathology

Learning Module 1 – Learning Component 1
Introduction, Terms, and Language of Pathology
Bird Facts

- 9300 Species of Birds
  - >22,000 Sub-Species
  - 166 Families
    - 27 Orders
- Wide Variations
  - Size
  - Behavior
  - Diet
  - Flight
Birds Are Not Mammals

• Differences in Anatomy
  – Beaks
  – Feathers
  – Accessory Structures
  – Lungs and Air Sacs
    • Pneumatic Bones
  – Crop, Proventriculus, Gizzard
  – Ceca
    • Not present in all avian species
Avian Histopathology

• Basic Responses of Avian Tissues to Injury
  – More Similarities Across Avian Species than Differences
  – Faster Response Times than Mammals
    • Inflammation
      – Hours not Days
      – Days not Weeks

• Basic Patterns are Similar to Mammals
  – Language of Pathology Does Not Change
Language of Pathology

• Disturbances of Circulation include:
  – Congestion
    • Usually of little help in making a disease Dx
  – Hemorrhage
  – Thrombosis
Language of Pathology

• Inflammation
  • Fibrin
  • Platelets
  • Heterophils
    – Heterophilic – Not Purulent Inflammation
  • Eosinophils
  • Lymphoid cells
  • Macrophages or Histiocytes
  • Fibroblasts and Collagen
  • Giant Cells
Terms

- Apoptosis
- Necrosis:
  - Caseous most common
- Hypertrophy
- Hyperplasia
- Metaplasia
- Neoplasia
- Atrophy
Patterns of Injury

- Relation to Normal Histology
- Focal
- Multifocal
- Diffuse
- Expanded
- Collapsed
- Intraleisional
“Things”

- Parasites
- Fungi
- Foreign Material
- Mineral
- Urates
- Pigments
- Fat
“Things”

• Bacteria

• Viral Footprints
  – I/N Inclusions
  – I/C Inclusions
Hemorrhage Example

- Pheasants
  - 24-25 Weeks
  - 26,000 in Flock
  - Mortality Increased Over Past Month
  - “Birds Just Lay Down and Die”
Gross Lesions in Crop
Crop and Proventriculus
Liver, Spleen, and Serosa
Proventriculus
Proventriculus – Higher Magnification
Thrombosis and Platelets

• Example is from Broiler Breeders
• Increased Mortality and Drop in Egg Production
• Swollen Kidneys