

# Marek's Disease (MD)

- MD is a highly infectious disease of chickens that is characterized by varying degrees of paralysis of the wings and legs and the presence of lymphoid tumors in various organs.
- This causes condemnation of broiler carcasses in the processing plant. It also causes immunosuppression by B-cell lysis.
- T-cells are transformed and are involved in tumor production.

# **Etiology**

## **Group B Herpes Virus**

- classified into serotypes -
- Serotype 1 – oncogenic type from chickens  
CVI 988
- Serotype 2 – non oncogenic type from  
chickens – SB1
- Serotype 3 – non oncogenic type from  
turkeys – HVT or Herpes virus of turkeys

# Incubation Period

- Natural Infection
  - 4-12 weeks
- Artificially Induced
  - 2-3 weeks

# **Course of Disease**

**10-12 weeks**

**mortality will usually continue for  
life of the flock**

# Method of Spread

- This virus is shed via feather follicle epithelium, dander, secretions and excretions.
  - Air currents play a major role in the dissemination
  - Carrier states – produces latent infections
  - Beetles – *Alphitobius diaperinus* – mechanical vectors

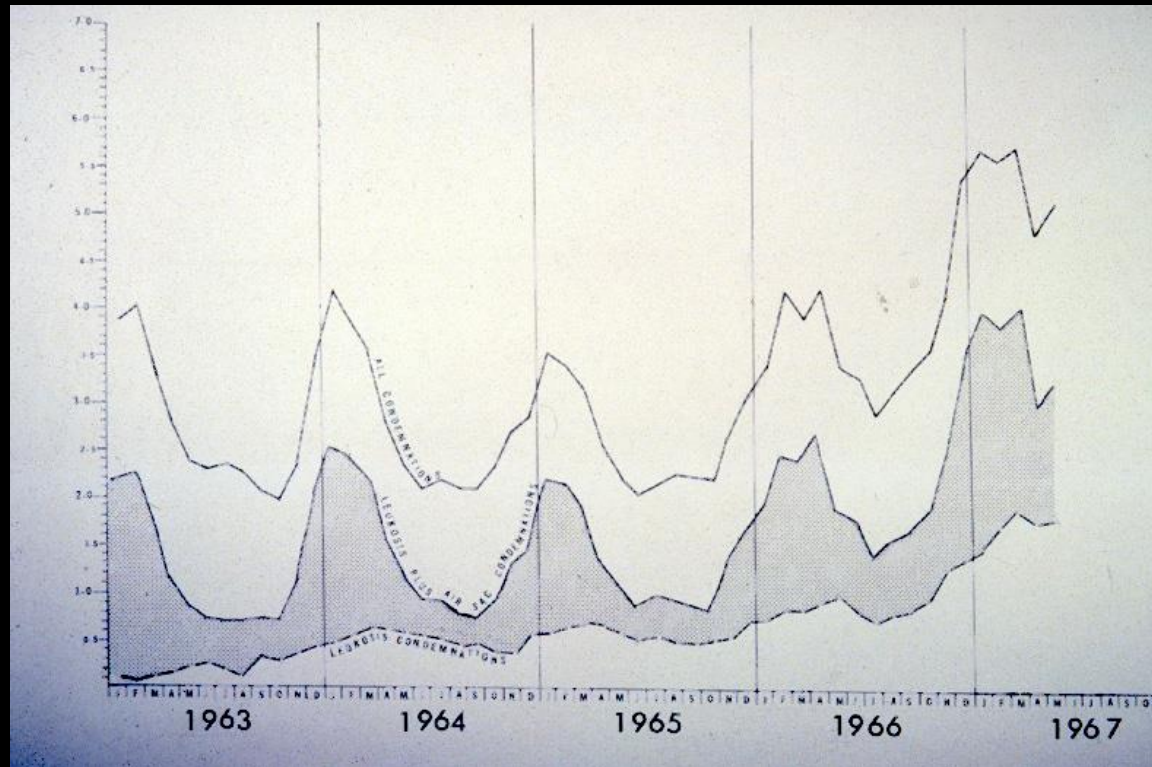
# Mortality

- Broilers: 1-5 % condemnation of processed birds in the biggest problem
- Layers: 10-50 %
- Breeder hens: 5-25 %

# Comments

- Mortality generally only occurs in unvaccinated birds.
- In hens laying eggs, the mortality pattern will follow the egg production curve, due to the stress of egg production.
- Problems are worse in housing with poor airflow.

# Seasonal Pattern





# Signs

- Paralysis of the legs or wings – classic range paralysis
- Emaciated
- Depression, anorexia and diarrhea
- Swollen hocks in acute skin leukosis – red legs
- Pupil decreases in size – becomes irregular in outline
- Iris becomes grey in color
- Pale shriveled combs

# Paresis



# Paresis



# Eye lesions



# Postmortem Lesions

- Feather follicles enlarged
- Tumors on any or all visceral organs (some tumors may regress with time)
- Enlarged edematous nerves
- Many viremic birds die without showing any visible lesions



# Skin Lesions



# Skin Lesions



# Skin Lesions

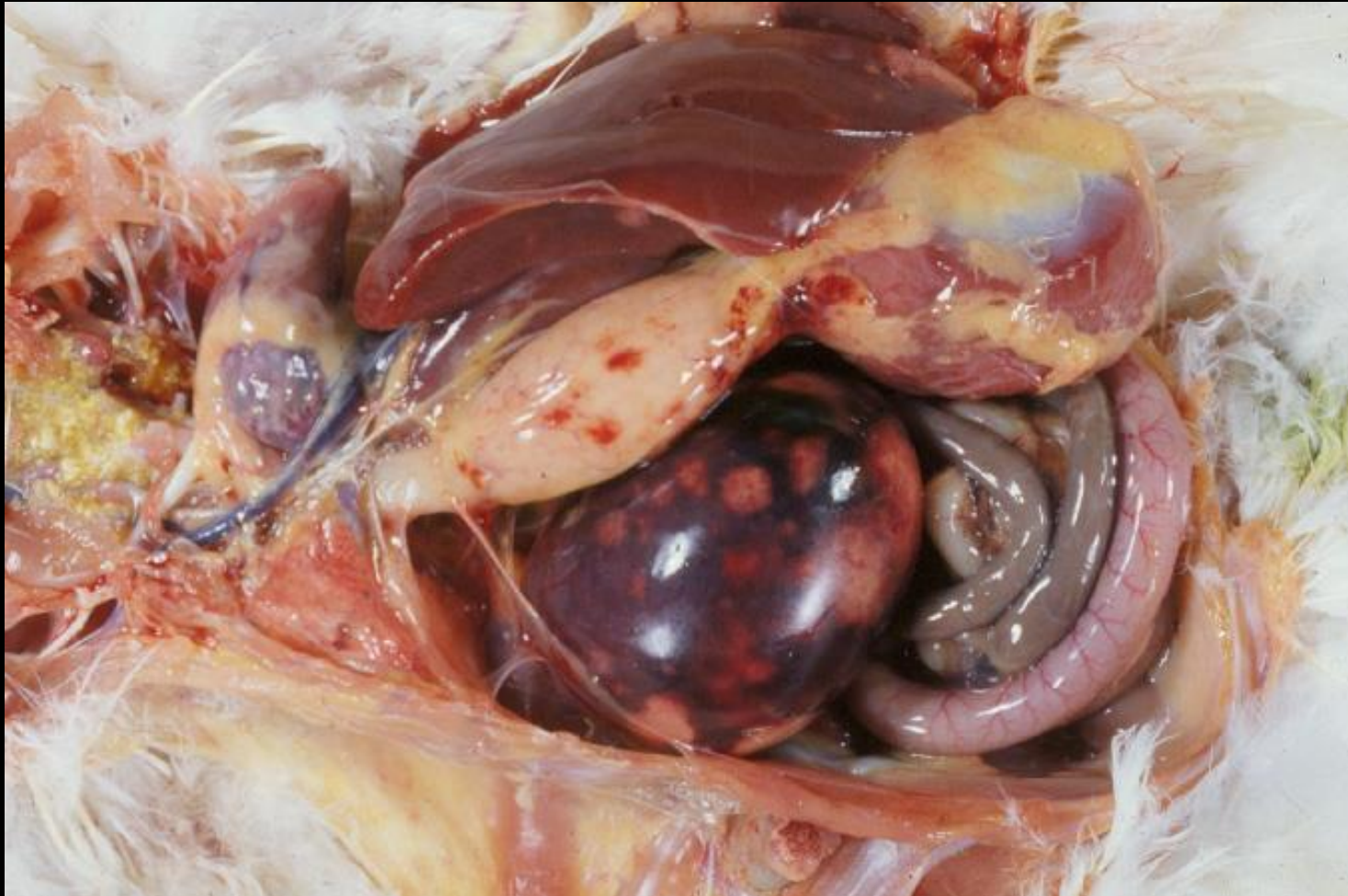




# Skin Lesions



# Spleen Lesions

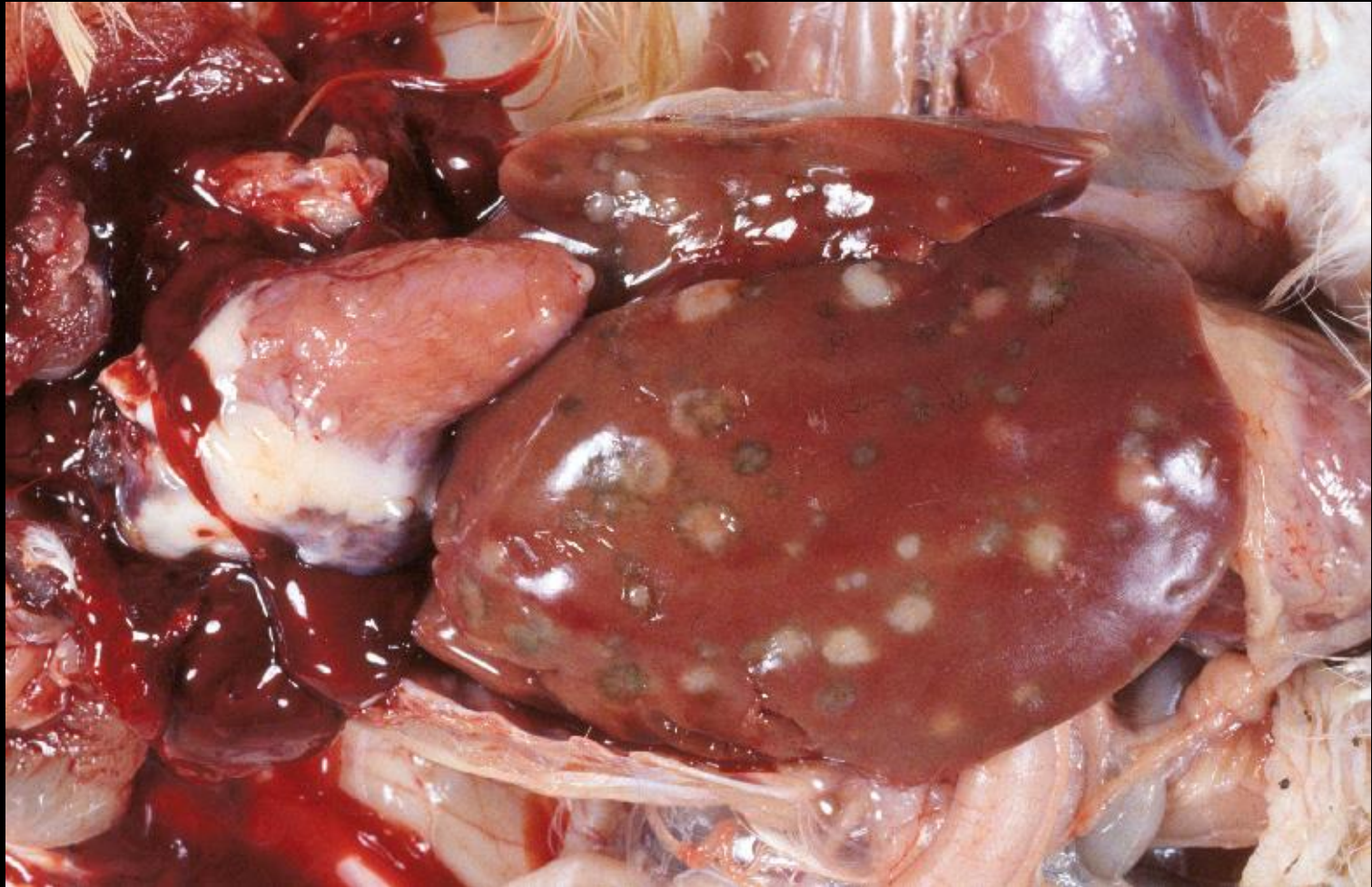




# Kidney Lesions

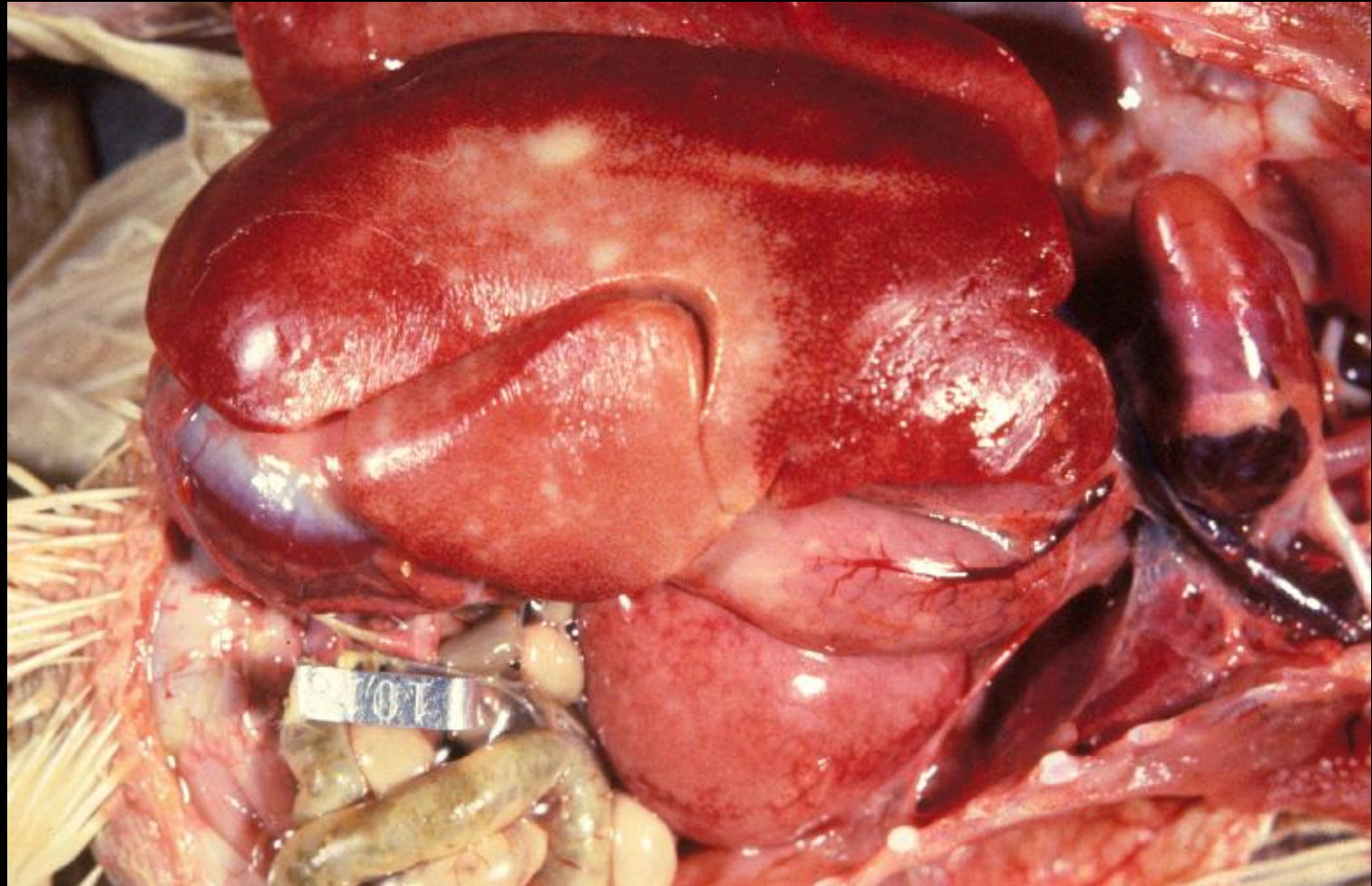


# Liver Lesions

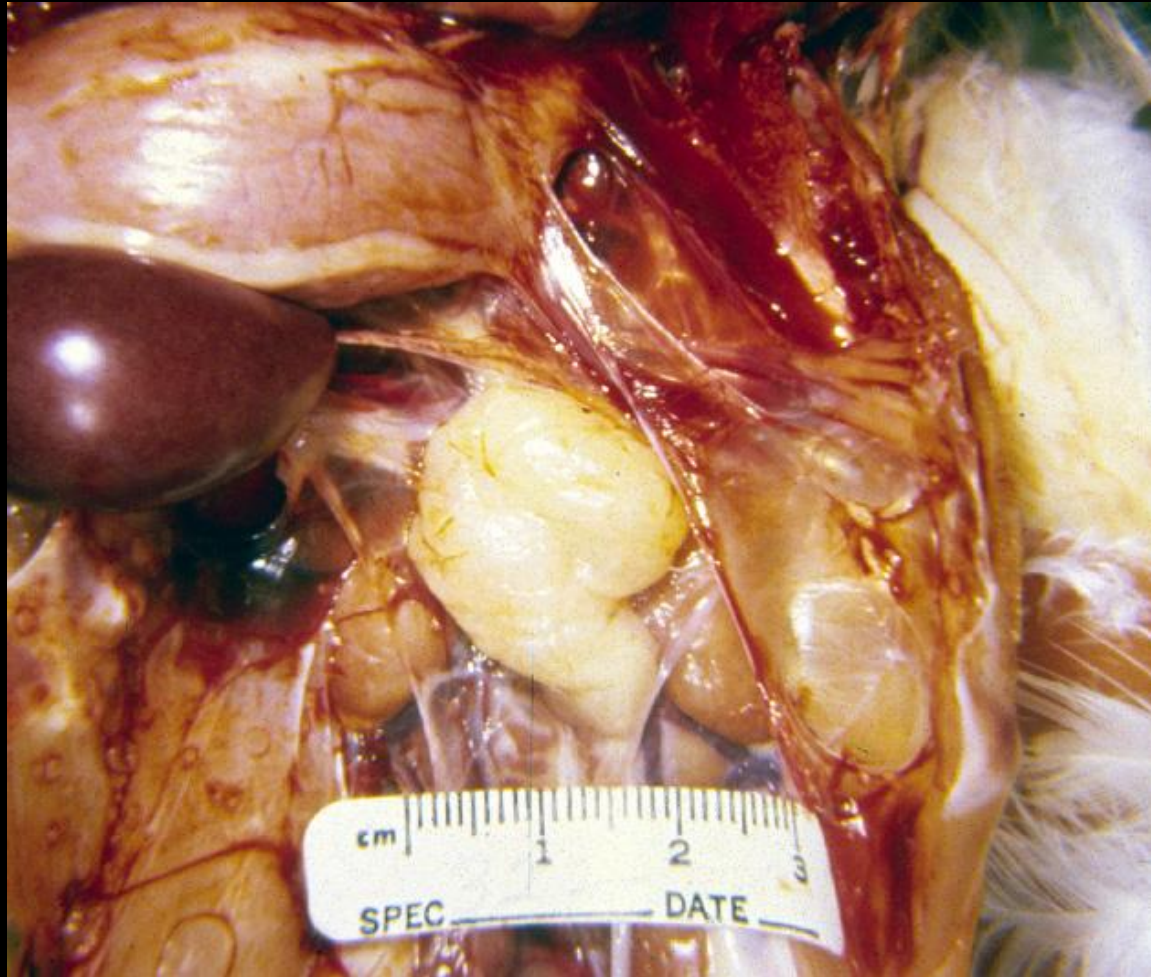




# Liver Lesions



# Gonad Lesions





# Gonad Lesions



# Heart Lesions

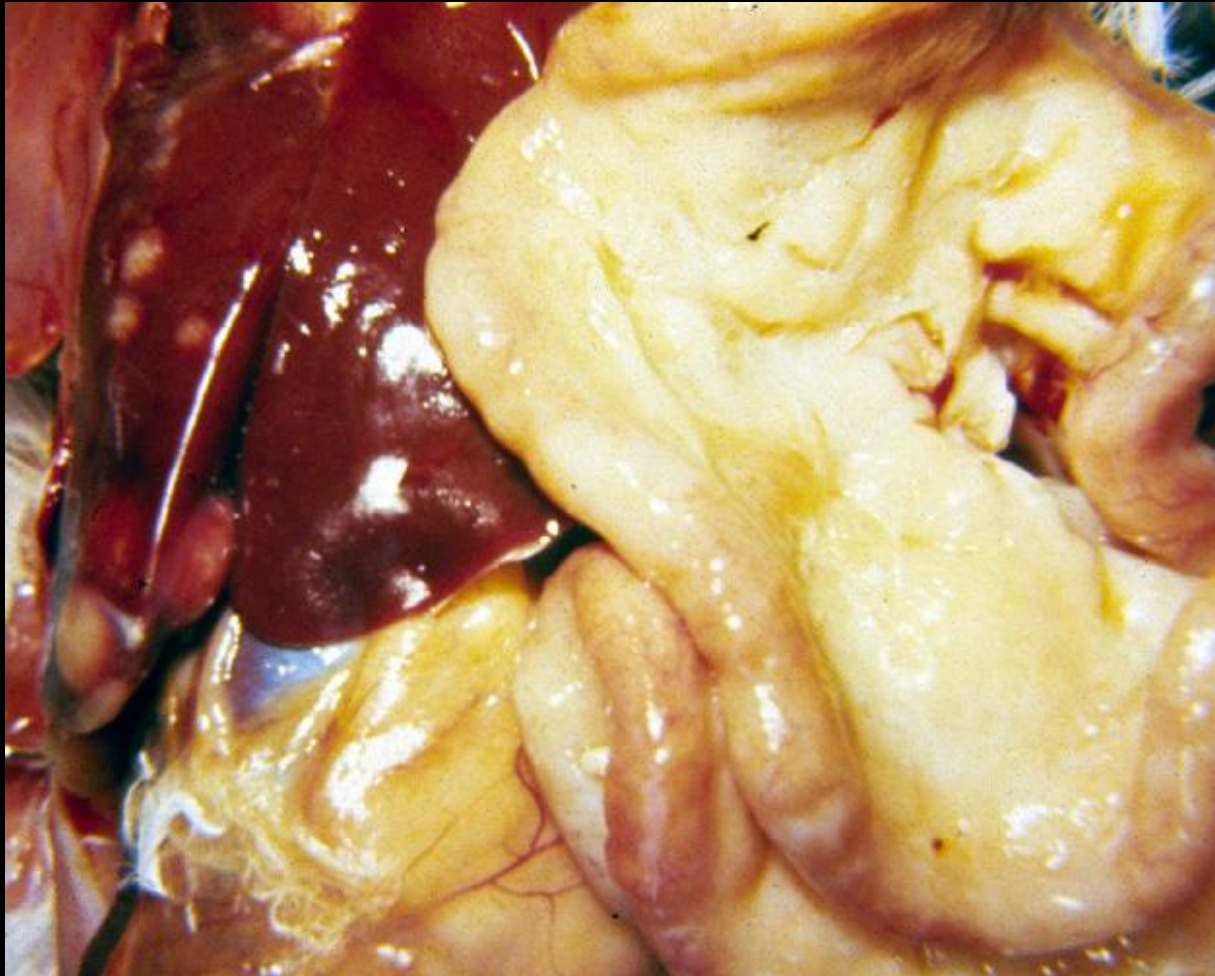




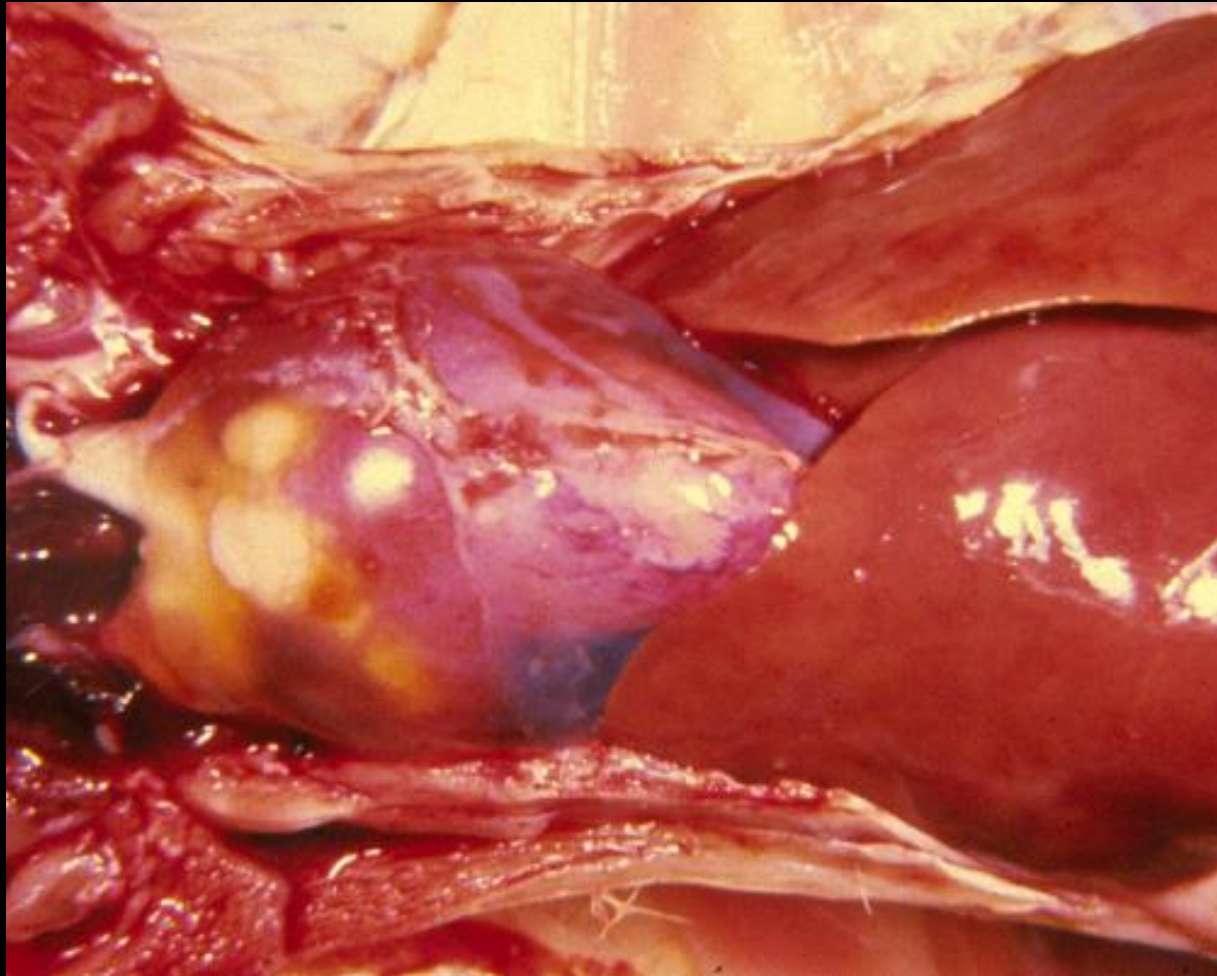
# Various Organs



# Liver & Mesentery

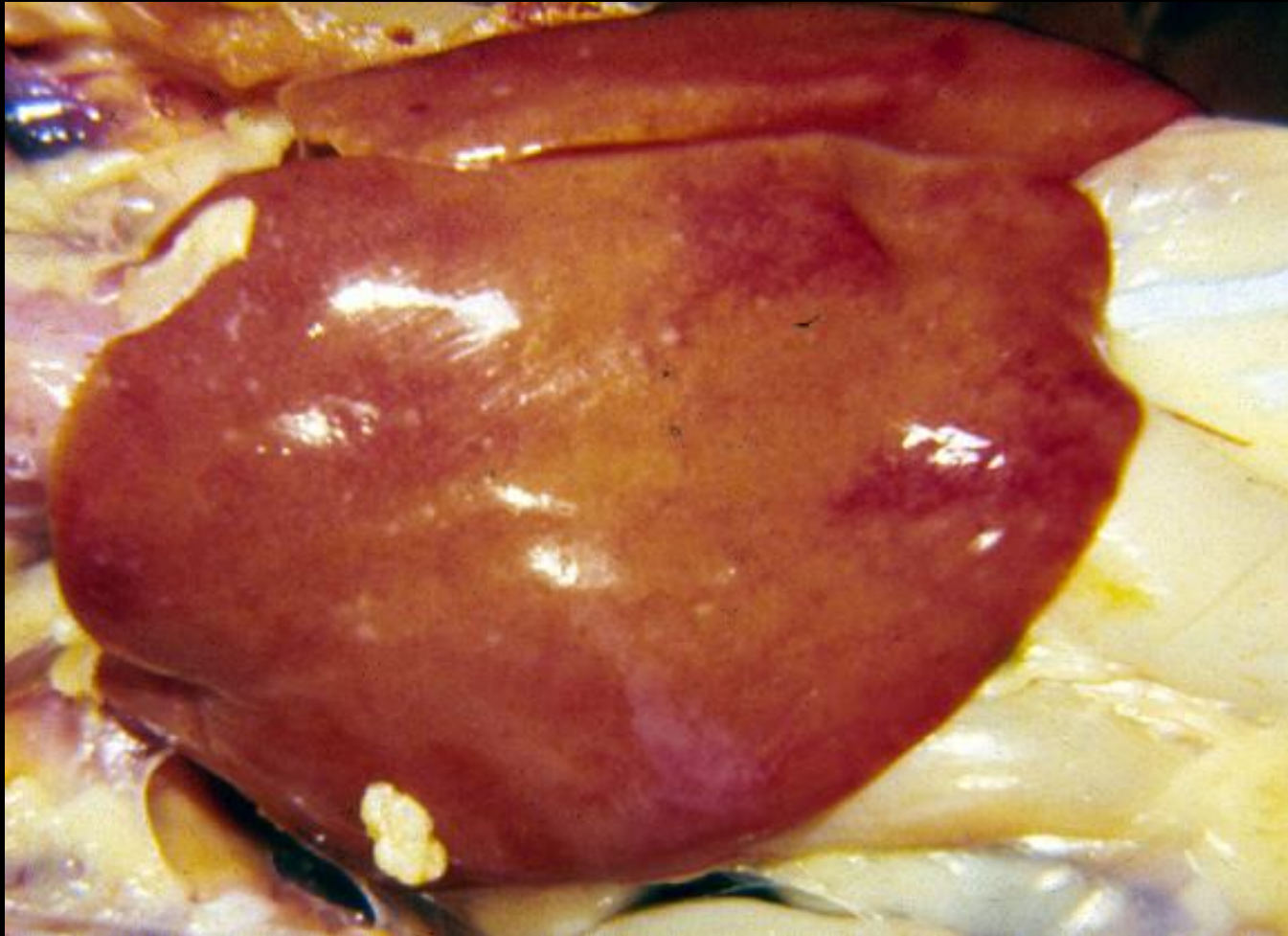


# Heart





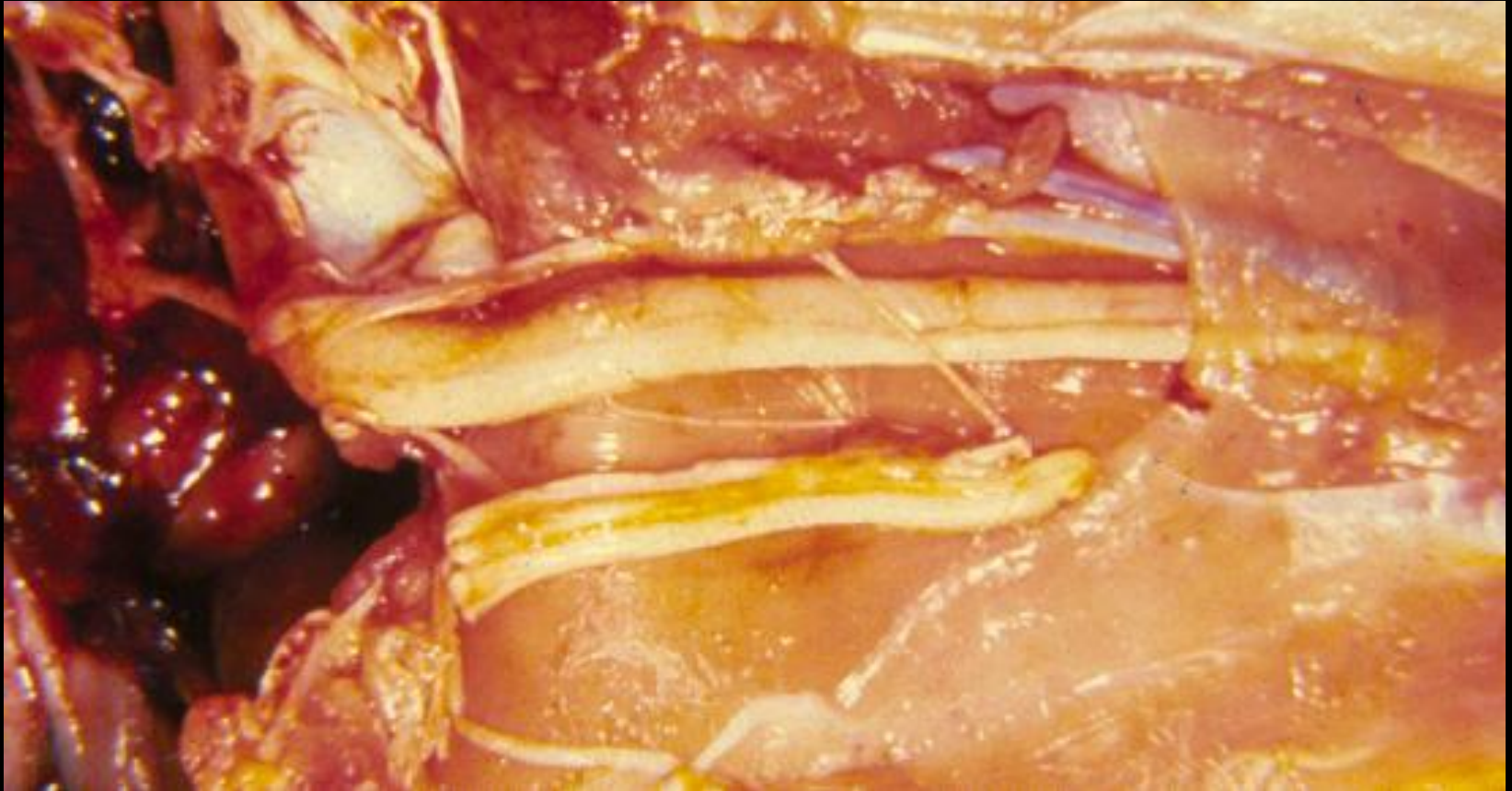
# Liver



# Affected/Normal Nerves



# Affected/Normal Nerves





# Differential Diagnosis

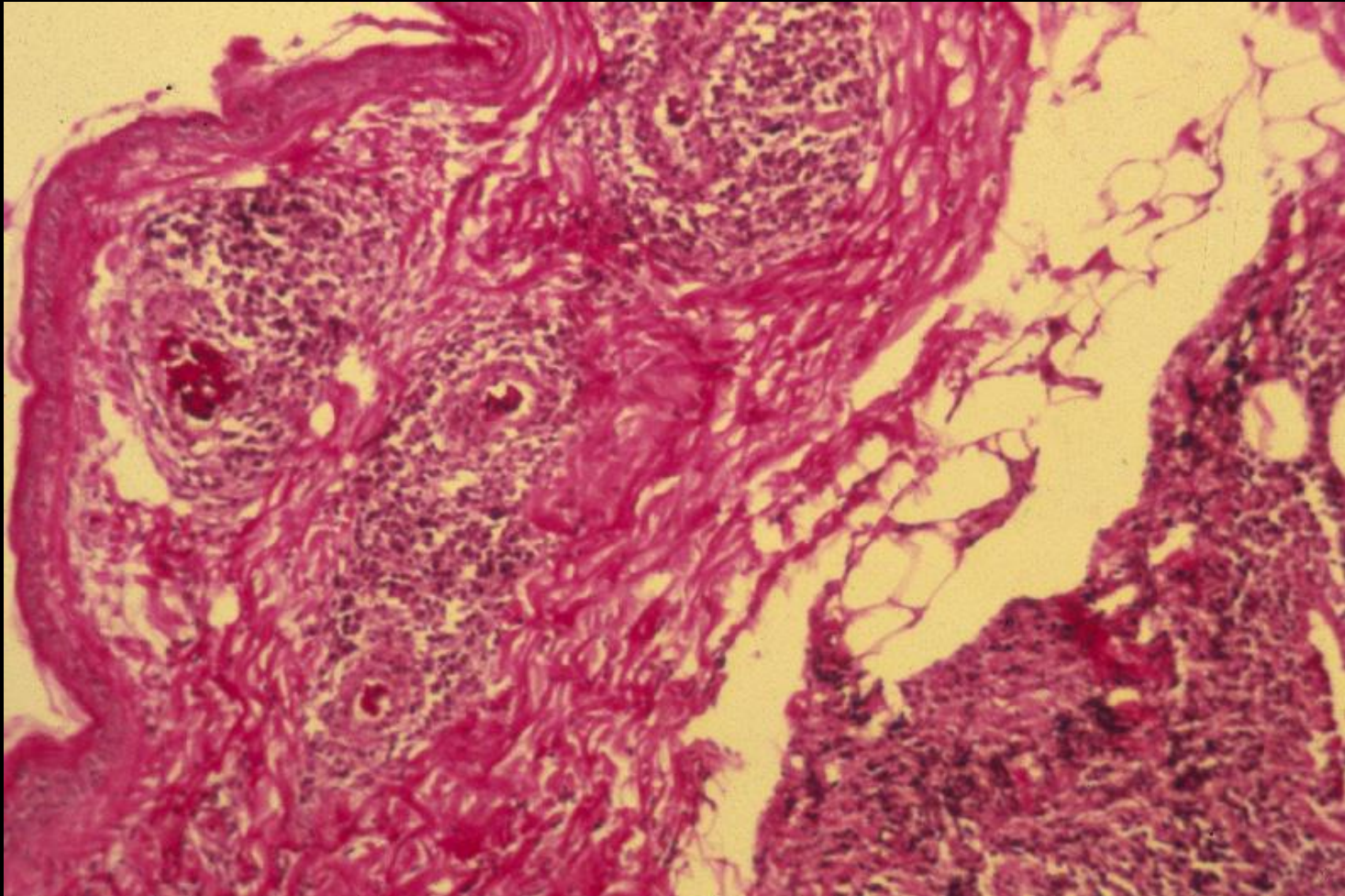
- Lymphoid leukosis – older birds only  
MDV more common in younger birds
- Riboflavin deficiency – causes hind limb paralysis
- Various types of chronic hepatitis  
i.e. Blackhead
- Any disease causing CNS signs – NDV, AI, Encephalomalacia, etc.

# Diagnosis

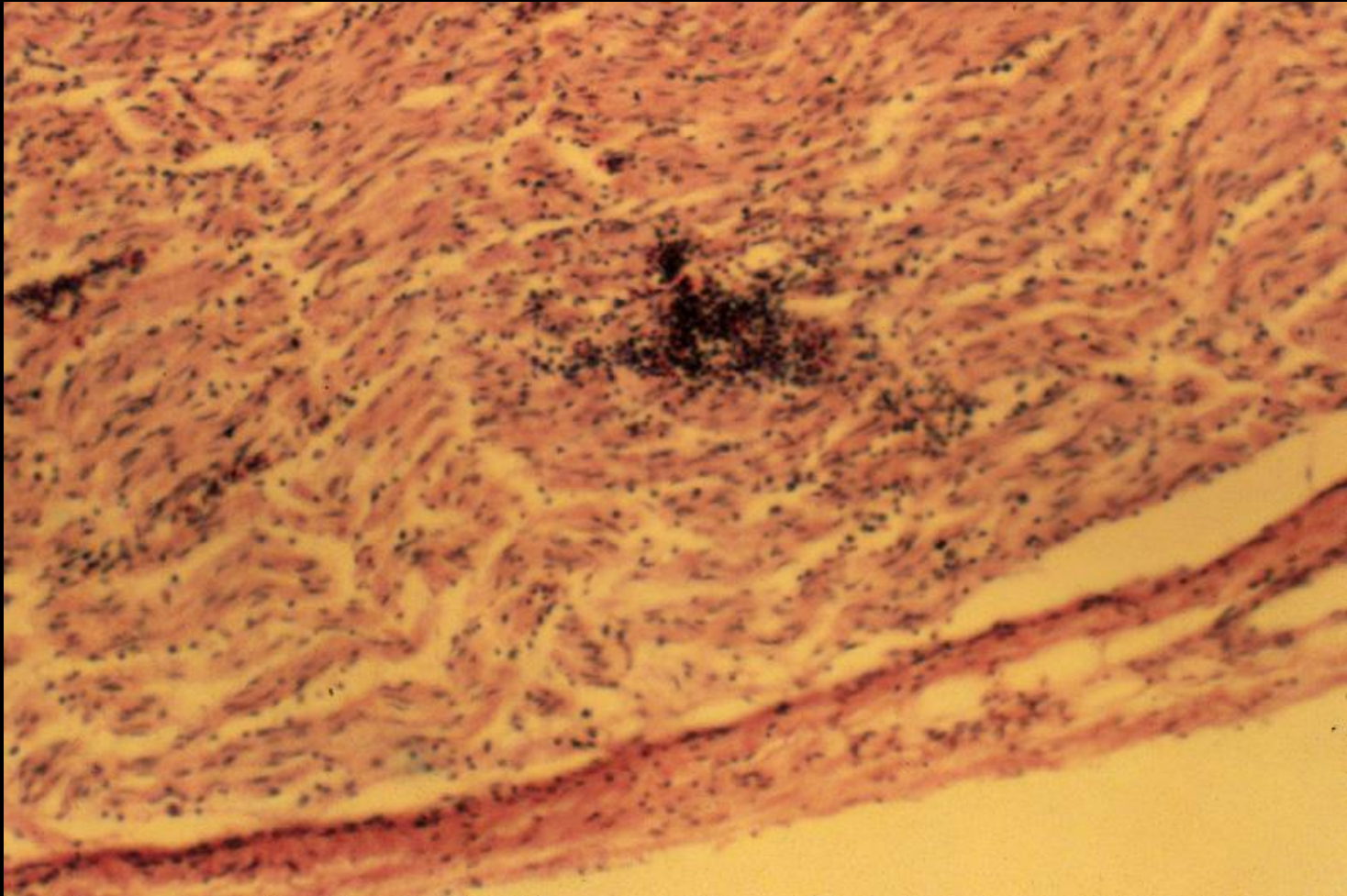
- Postmortem lesions
- Histopathology – brain, nerve, spleen, liver, kidney, heart, bursa, skin – lymphocytic infiltration



# Histo

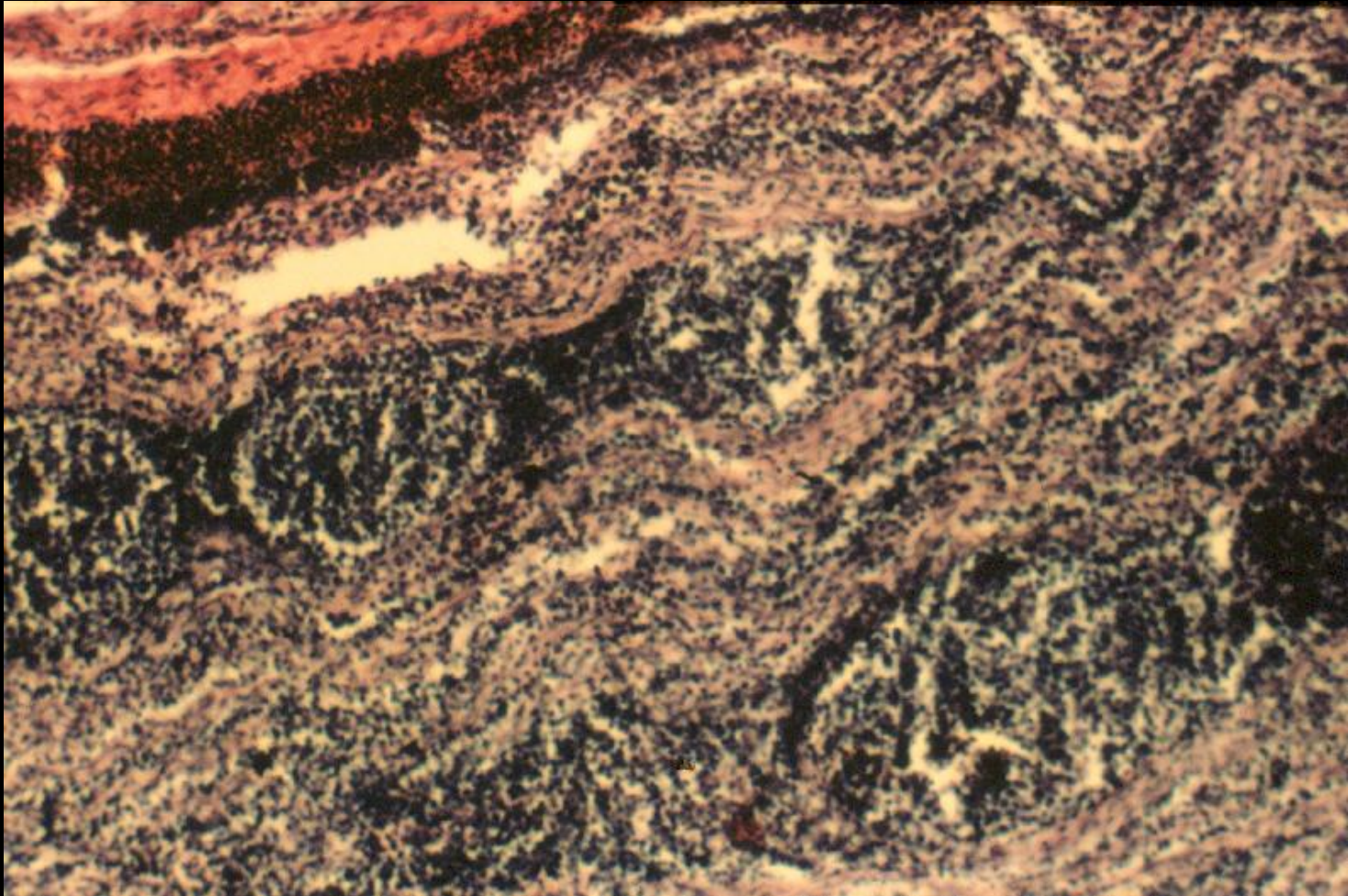


# Histo





# Histo



# Prevention

- Vaccination – doesn't prevent infection
    - only prevents lesions – given at day 1 by subcutaneous injection in the hatchery or in-ovo at transfer
      - (HVT) Turkey herpes virus – Serotype III
      - SB-1 Non pathogenic MD virus – chicken origin – Serotype II
      - Modified Live Marek's Virus CVI-988/C - Rispen's chicken origin – Serotype III
- Use Combined with HVT

# Vaccination





# Missed Vaccination



# Contaminated

