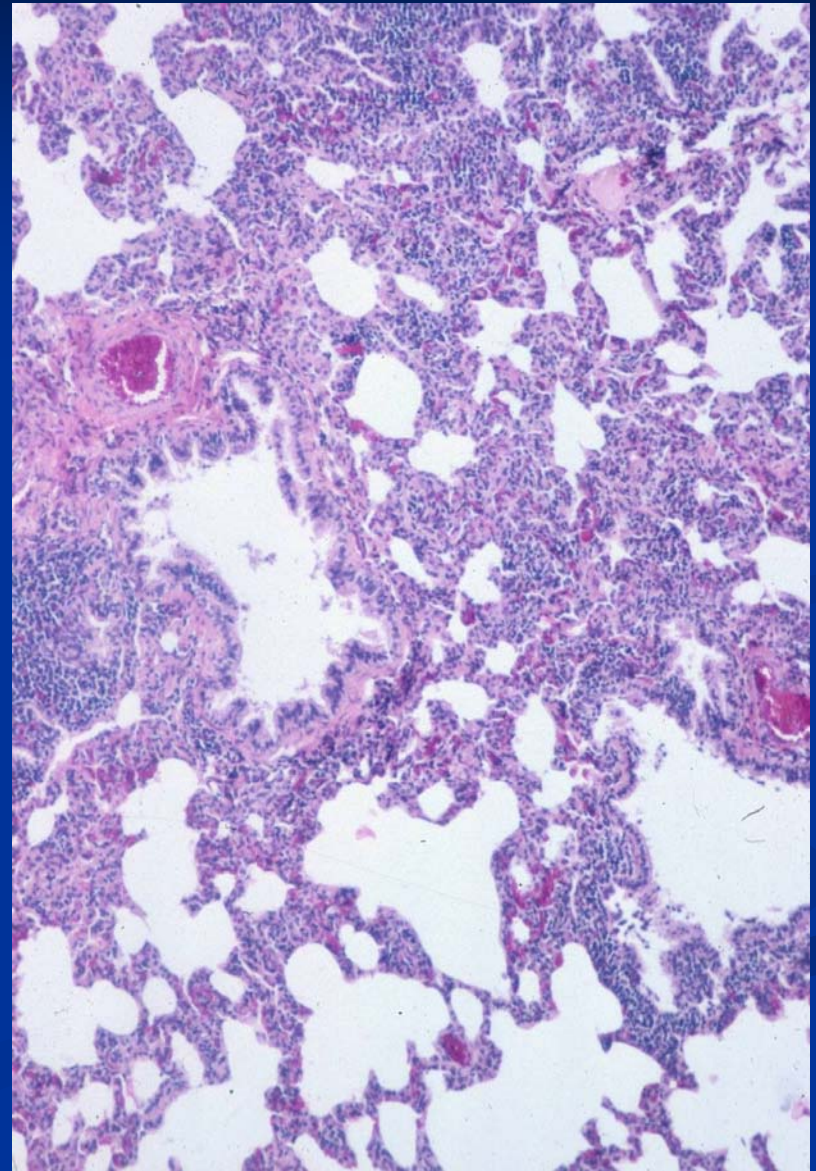
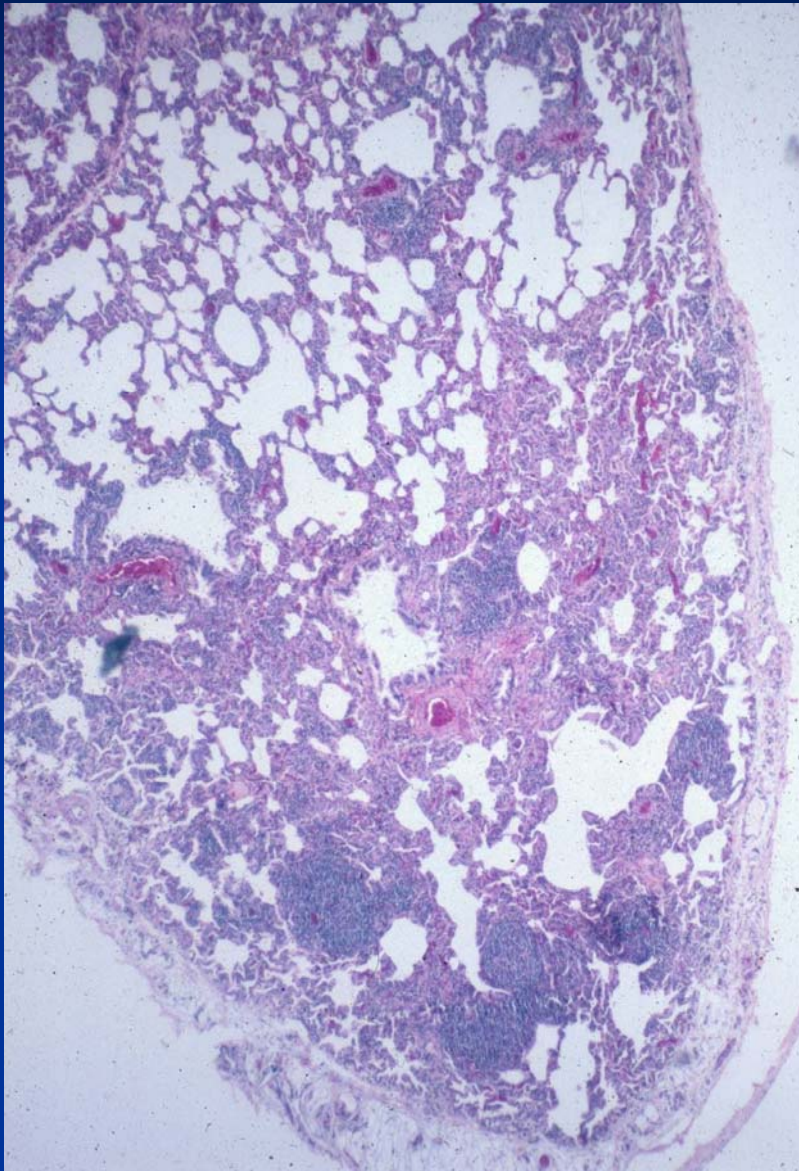


# Caprine Arthritis- Encephalitis (CAE)



# Caprine Arthritis- Encephalitis (CAE)



# Bacterial Pneumonias

## ■ Bacterial Agents

- *Mannheimia (Pasteurella) haemolytica*

- *Pasteurella multocida*

- *Histophilum somni (Haemophilus somnus)*

- *Mycobacterium sp.*

- *Mycoplasma mycoides ssp. Mycoides*

- Sheep and goats – pseudoglanders – *Burkholderia pseudomallei* – pulmonary abscesses

# Bovine Respiratory Disease (BRD)

- “Shipping Fever Complex”
  - Acute disease
  - High mortality
- Enzootic pneumonia
  - Young calves that are intensively housed
  - High morbidity, low mortality
- Embolic pneumonia
  - Sporadic

# “Shipping Fever Complex”

## ■ Predisposing factors

- Shipping and other stressors (feedlot)
- Viral infection (IBR, BRSV, **BVD**, PI-3)

## ■ Etiology

- *Mannheimia (Pasteurella) haemolytica* biotype A, serotype 1
- *Pasteurella multocida* (type A)
- *Histophilum somni* (*Hemophilus somnus*)
  - Respiratory hemophilosis
  - TEME – thrombo-embolic meningoencephalitis

# “Shipping Fever Complex”

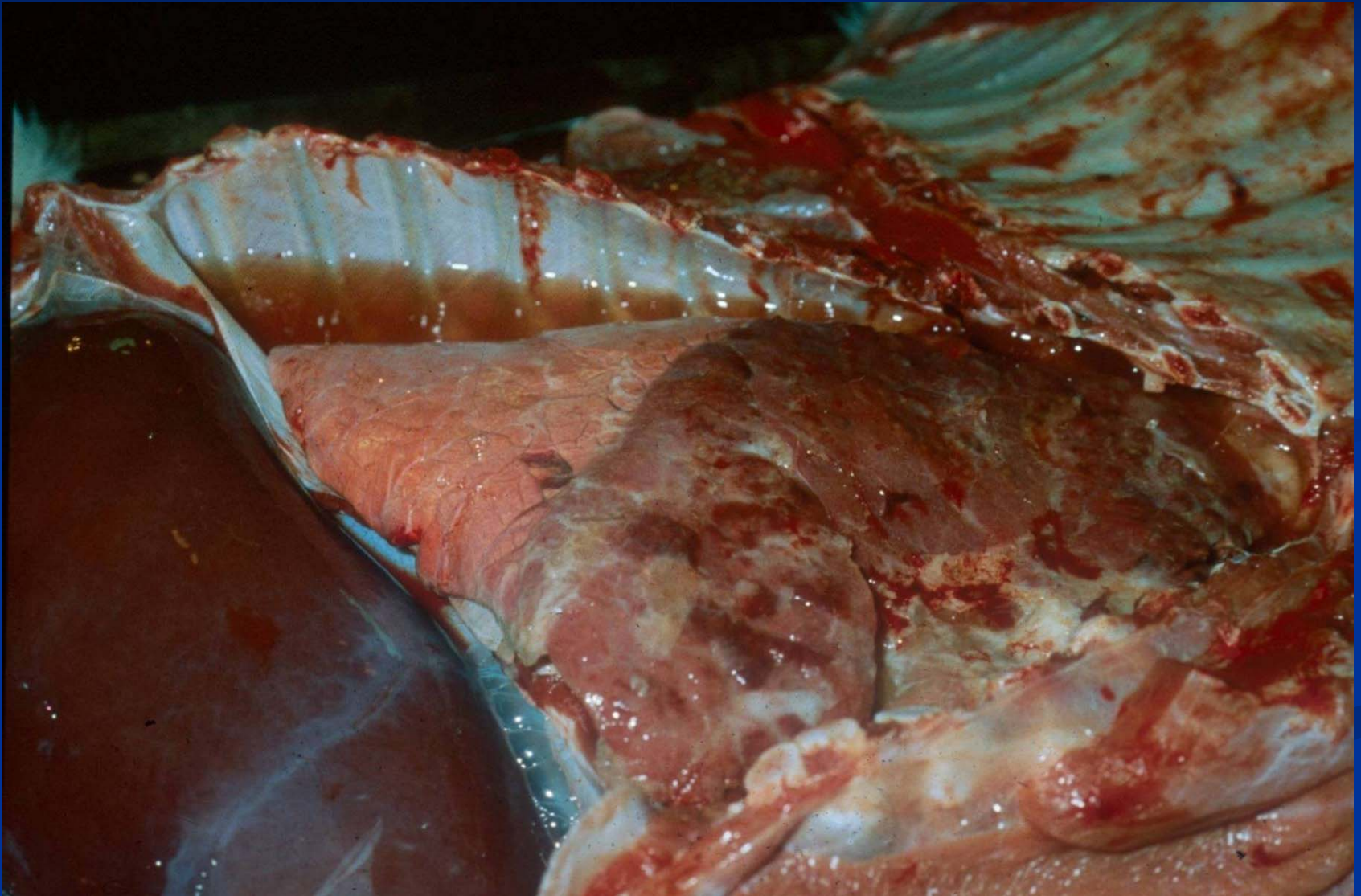
## ■ Disease

- Few days to weeks after shipping
- Systemic and respiratory clinical signs

## ■ Gross Pathology

- Severe fibrinous anteroventral bronchopneumonia
- Fibrinous pleuritis and pleural effusion

# “Shipping Fever Complex”



# Bronchopneumonia—Fibrinous





# Pneumonic Mannheimiosis

- *Mannheimia haemolytica*
- Virulence factors
  - Exotoxin –leukotoxin binds and kills ruminant neutrophils and macrophages which release proinflammatory cytokines, free radicals, etc
  - Endotoxin, LPS, membrane proteins
- Histopathology
  - Necrotic areas rimmed by degenerating and elongated neutrophils (“oat cells”)

# Pneumonic Mannheimiosis

