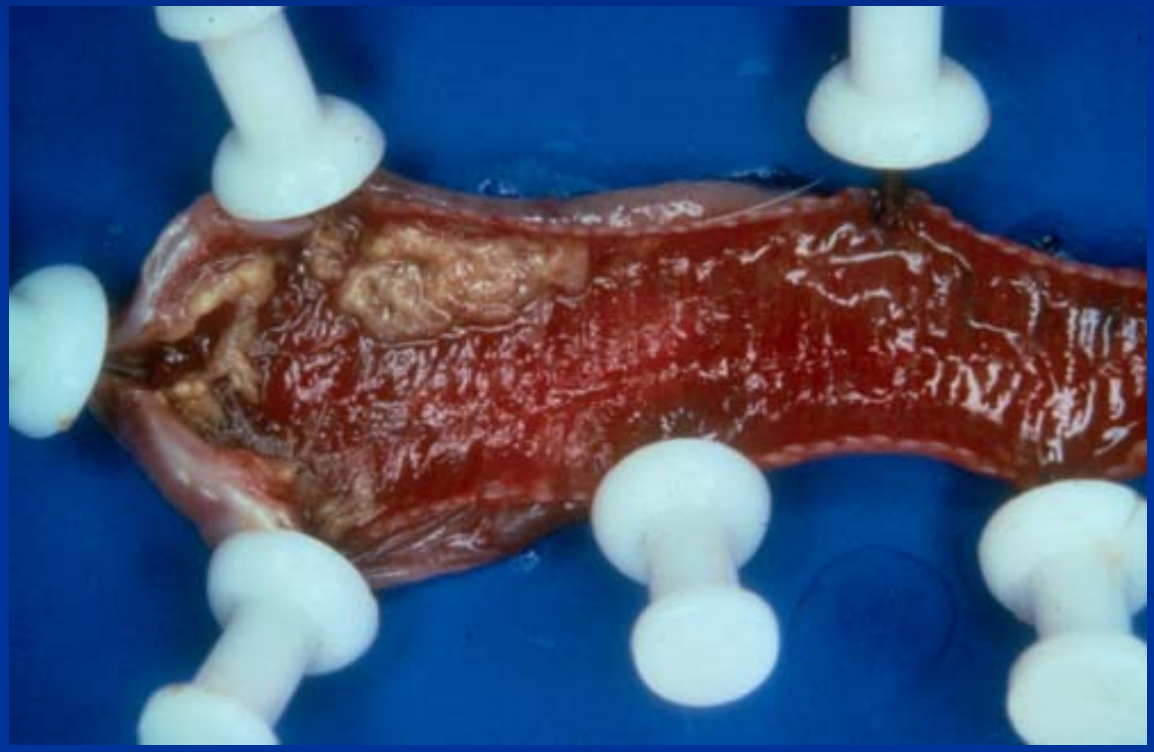
Infectious Laryngotracheitis (ILT)

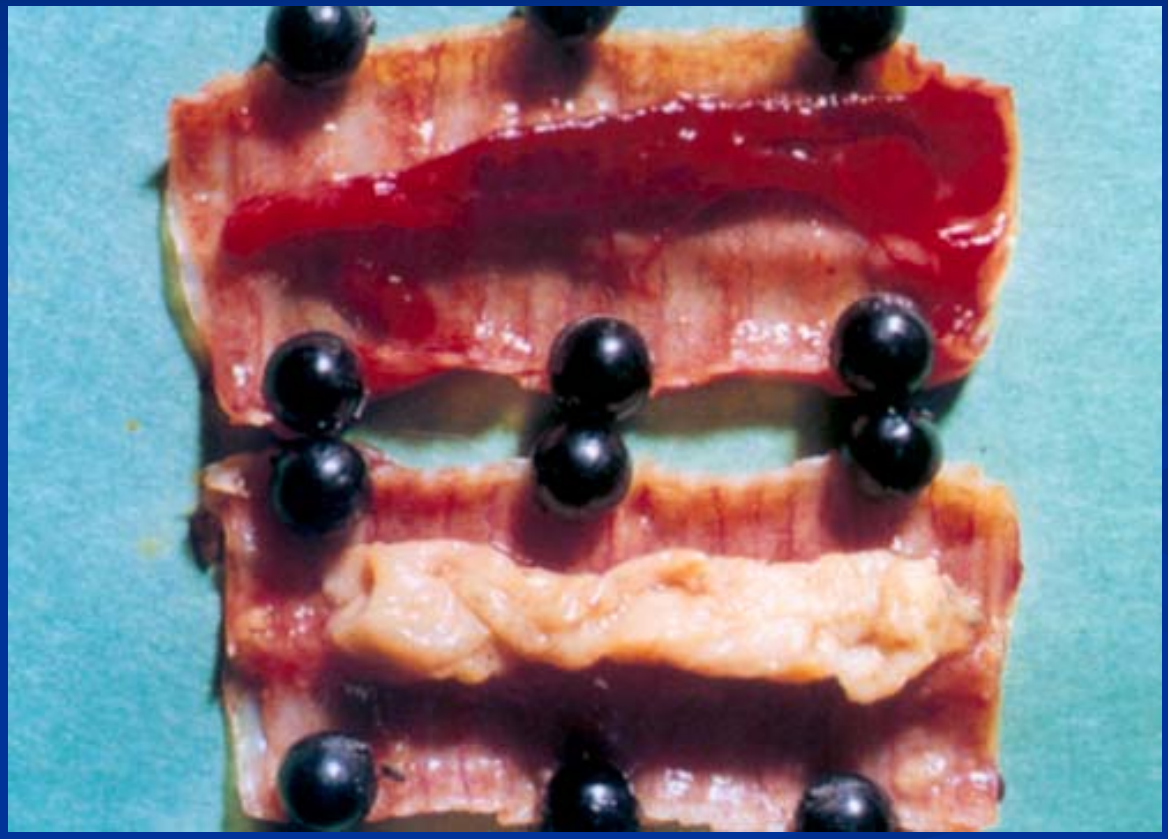
- Lesions:
  - Highly pathogenic
    - hemorrhage & necrosis of laryngeal and tracheal mucosa
    - **diphtheritic pseudomembrane in trachea** ("tracheal plugs")
  - Low pathogenic
    - None to conjunctivitis, infra-orbital sinusitis

Infectious Laryngotracheitis (ILT)



diphtheritic pseudomembrane in larynx & trachea, with tracheal hemorrhage and necrosis

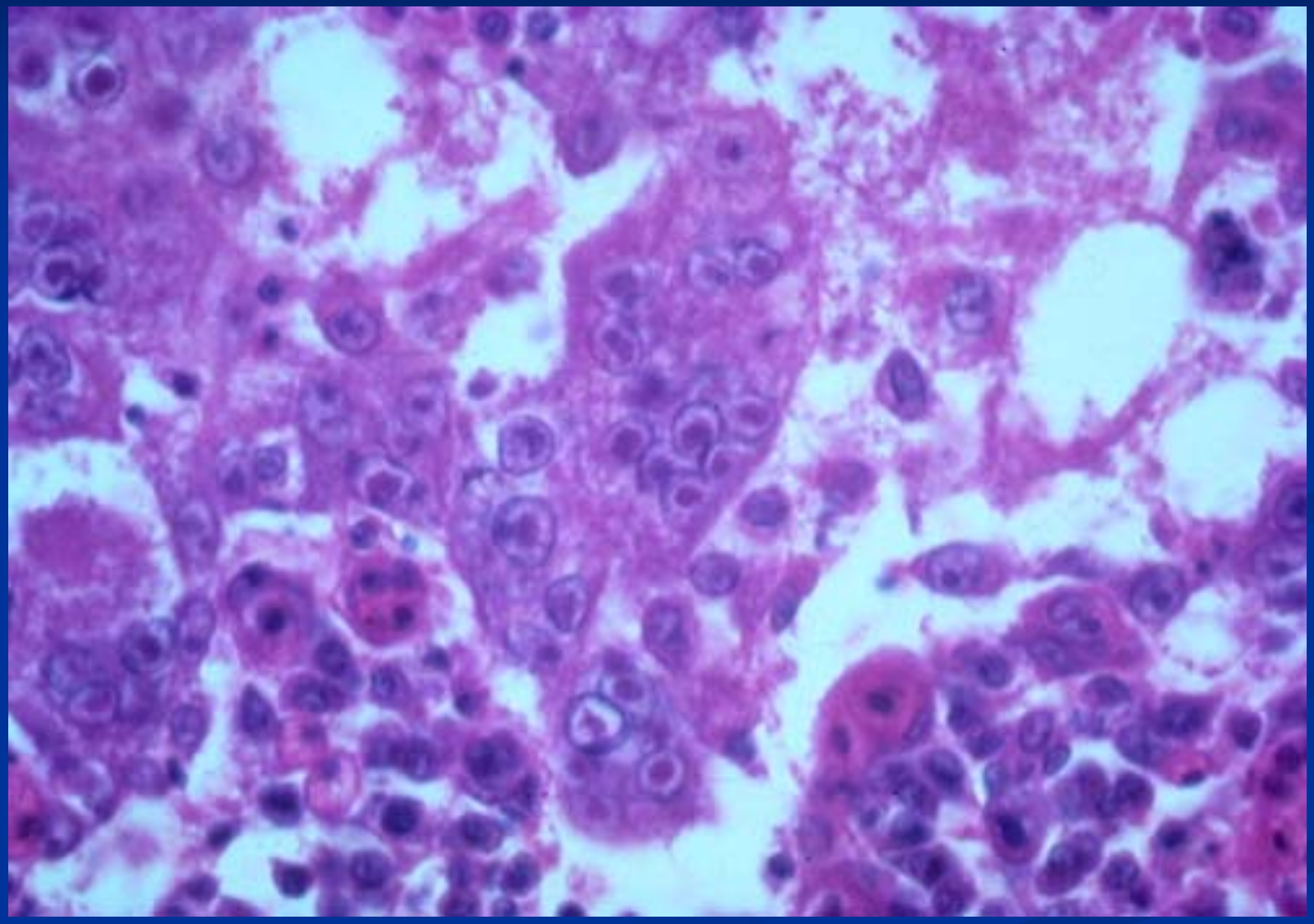
Infectious Laryngotracheitis (ILT)



Infectious Laryngotracheitis (ILT)

- Diagnosis
  - Histopathology – **necrotizing laryngotracheitis with syncytial cells & eosinophilic intranuclear inclusion bodies**
    - **Turbinates a good site for inclusion bodies**
  - Serology
  - FA
  - PCR
  - Virus isolation
- *In USA, ILT is reportable in many states*

Infectious Laryngotracheitis (ILT)



Infectious Bronchitis (IB, IBV)

- Acute, highly contagious respiratory disease of chickens
  - classically see infectious bronchitis in 6 wk old chicks
- Respiratory disease, **renal disease**, & decreased egg production
- Causative agent is coronavirus
- In Australia, renal form most common – uncommon disease due to vaccination

Infectious Bronchitis

- Pathogenicity
  - considerable variation among strains
  - replication in respiratory, intestinal, renal & reproductive tissues
- In Australia (J. Comp. Pathol. 2002)
  - 1960s to 1970s – mainly highly nephropathogenic, mortality 5-90%
  - 1980s to early 1990s – mainly respiratory – no kidney lesions and no mortality.
  - Mixed pathogenicity strains – tracheitis, mild nephritis, no mortality
  - Now nephrogenic strains

Infectious Bronchitis

- Transmission
  - primary route via aerosol (inhalation of viral particles from infected, coughing chickens)
    - airborne virus may spread over a distance of 1 km
  - recovered birds may be carriers and shed virus for months
- Secondary *E. coli* infection may be present

Infectious Bronchitis

- Clinical signs
  - chicks
    - gasping, coughing, sneezing, oculonasal discharge
    - mortality usually low unless complicated by other agents
    - nephrotropic strains may cause high mortality

Infectious Bronchitis

- Clinical signs, cont.
  - broilers/layers
    - coughing, sneezing, rales (rarely see oculonasal discharge)
    - marked decrease in egg production - eggs may be misshapen or soft-shelled
    - increased mortality (associated with urolithiasis from nephrotropic strains)

Infectious Bronchitis

Infectious Bronchitis

Misshapen eggs from IBV infected hens

Infectious Bronchitis

- Lesions
  - serous or catarrhal exudate in trachea, especially bifurcation
  - air sacculitis
  - pale & swollen **kidneys** with ureters distended with uric acid crystals (+/- urolithiasis)
  - fluid yolk material in abdominal cavity

Infectious Bronchitis

Infectious Bronchitis

- Histopathology
  - Trachea – mucosal edema, cilial loss, mild tracheitis and lymphoid hyperplasia (a common response to antigen stimulation)
  - Kidney – interstitial nephritis, vacuolation and desquamation of tubular epithelium , multifocal necrosis
- Diagnosis
  - virus isolation (trachea, cecal tonsils)
  - serology
  - PCR

Viral Respiratory Diseases

- Avian Pneumovirus – not in Australia
  - Paramyxovirus in genus Pneumovirus
  - Primarily a disease of turkeys
  - Also called
    - turkey rhinotracheitis - TRT
    - swollen head syndrome - SHS
    - avian rhinotracheitis -ART
  - Europe, Africa, Asia, USA (1996)
  - More severe disease often associated with secondary infection, especially swollen head

Bacterial Respiratory Diseases

- Fowl Cholera (FC)
  - infectious disease of domesticated and wild birds (particularly waterfowl)
  - causative agent is *Pasteurella multocida*
  - acute septicemia with high morbidity and mortality or respiratory disease
  - pathogenicity
    - virulence variable and complex
    - pathogenicity enhanced by lipopolysaccharide capsule/endotoxin

Fowl Cholera

- Incidence / distribution
  - occurs in most countries
  - more prevalent in late summer, fall, & winter
    - seasonal occurrence because birds are more susceptible as they reach maturity
    - bacterium is easily inactivated by sunlight, drying, or heat
  - recent outbreak near Camden (EMAI) in turkeys

Fowl Cholera

- Hosts
  - turkeys more susceptible than chickens
  - mature chickens (laying flocks) > juveniles
  - week old poults resistant to effects of LPS
  - domestic ducks & geese highly susceptible
  - may affect other avian species (raptors & birds in collections)

Fowl Cholera

- Transmission
  - usual route - mucous membranes of pharynx & URT
  - major source - chronically-infected birds
    - including free-flying, wild birds
  - fomites (contaminated shoes, cages, etc.)

Fowl Cholera

- Clinical signs:
  - Acute disease (may only be present 1-2 hours)
    - mostly abrupt increase in mortality ("sudden deaths")
    - fever, anorexia, ruffled feathers, oral mucous discharge, tachypnea, cyanosis
  - Chronic disease - esp with low virulence types
    - wattles, sinuses, joints, foot pads - swollen with purulent exudate
    - URT—croup, tracheal rales, dyspnea
    - torticollis if middle ear & skull affected (osteomyelitis)

Fowl Cholera

wattles distended
with exudate

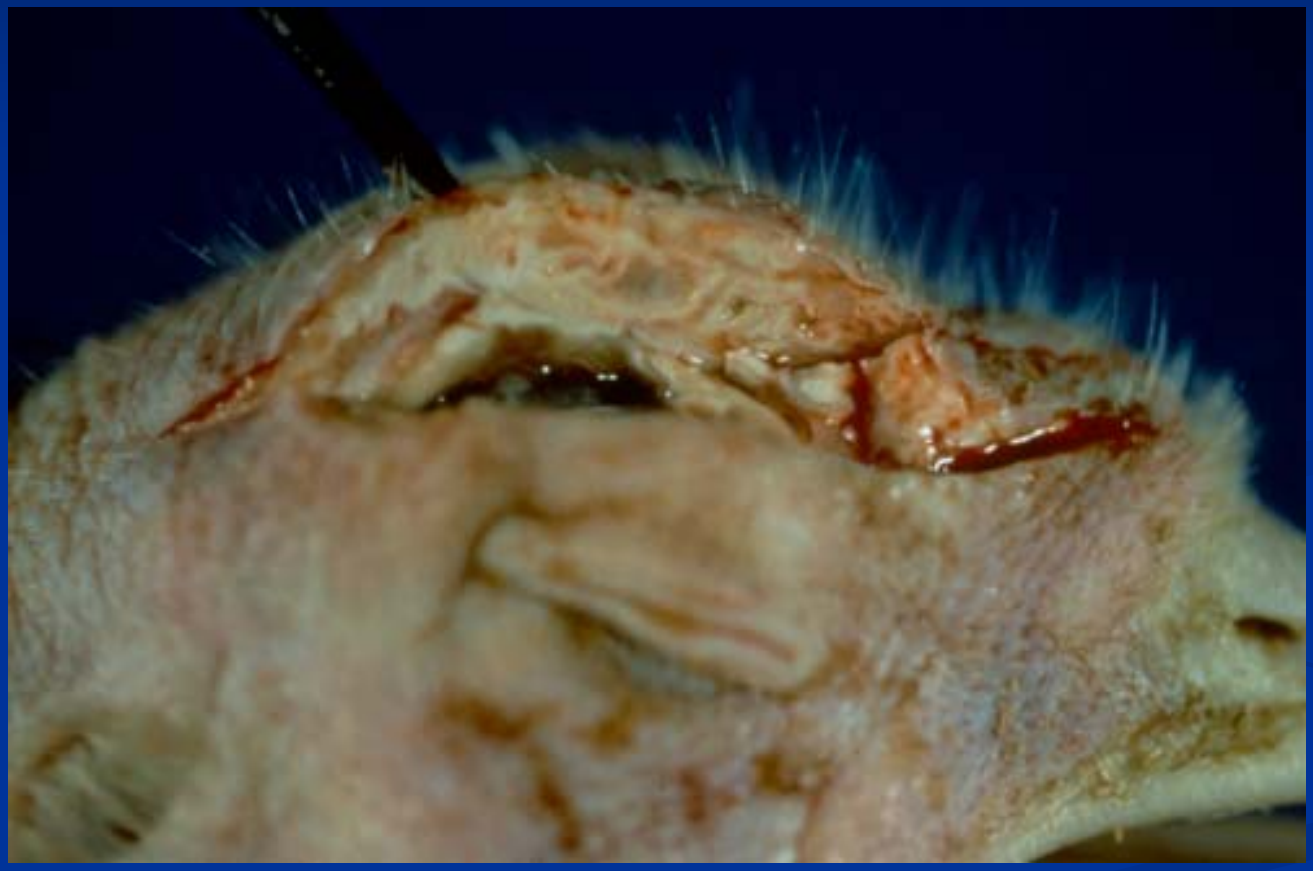
Fowl Cholera

torticollis

Fowl Cholera

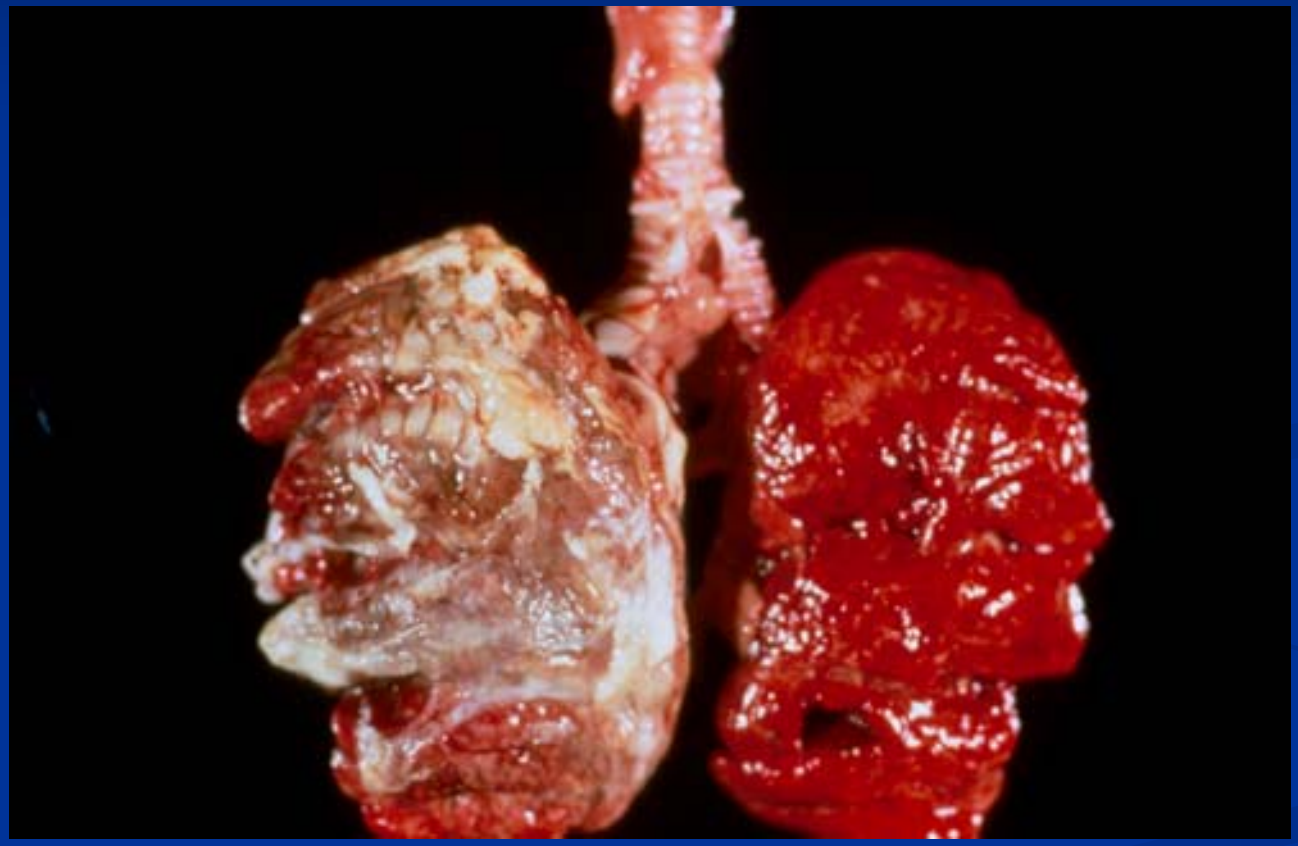
- Gross lesions:
  - acute disease
    - epicardial hemorrhages
    - **hepatomegaly** (+/- miliary necrotic foci)
    - fibrinous pleuropneumonia (especially in turkeys)
      - *often unilateral*
    - may see only a fibrinous serositis/peritonitis
  - chronic disease
    - osteomyelitis
    - purulent dermatitis, air sacculitis, polyarthritis

Fowl Cholera



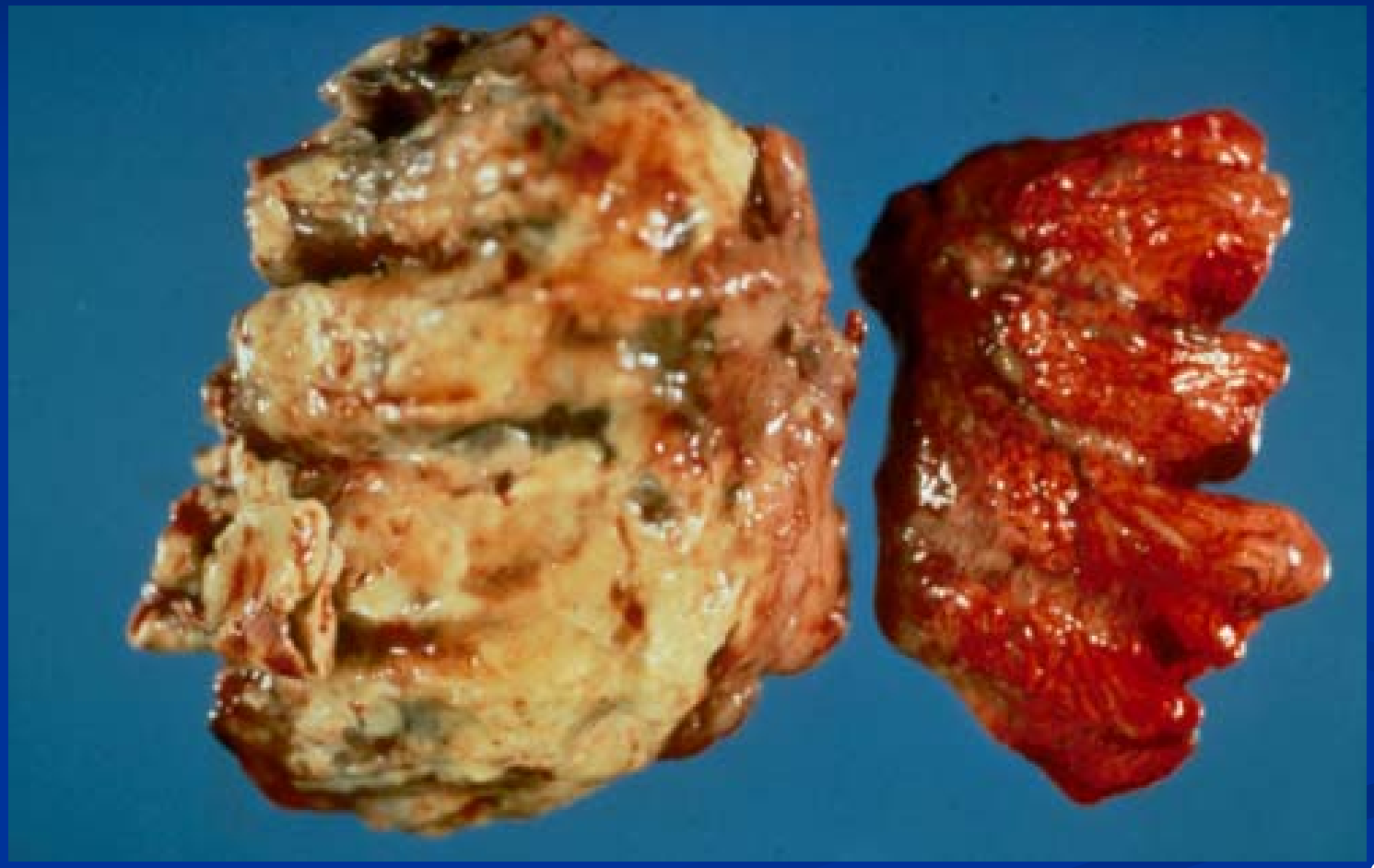
purulent exudate in subcutaneous tissues of head, comb, & wattles

Fowl Cholera

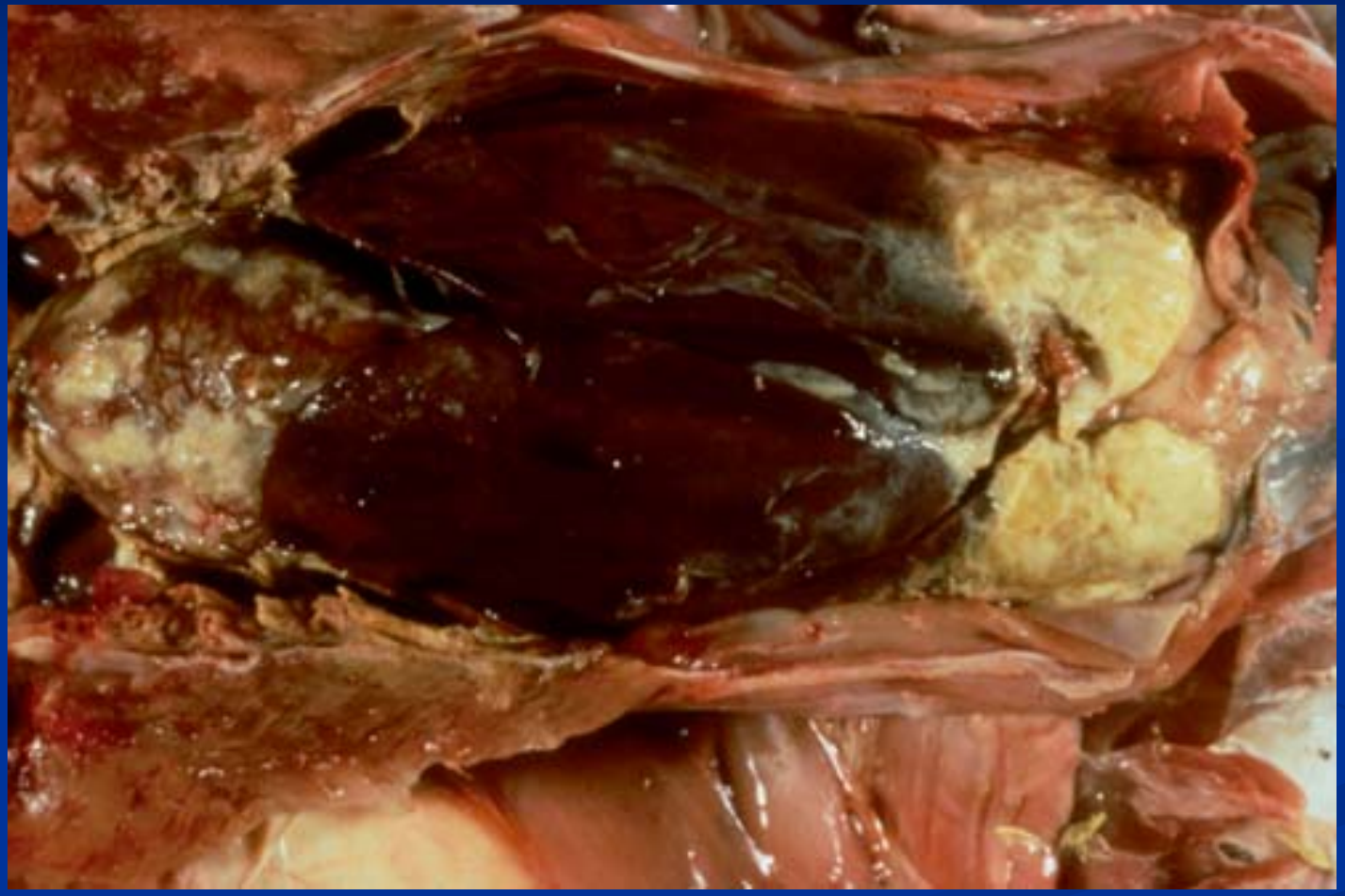


unilateral
fibrinous
pleuropneumonia

Fowl Cholera



Fowl Cholera

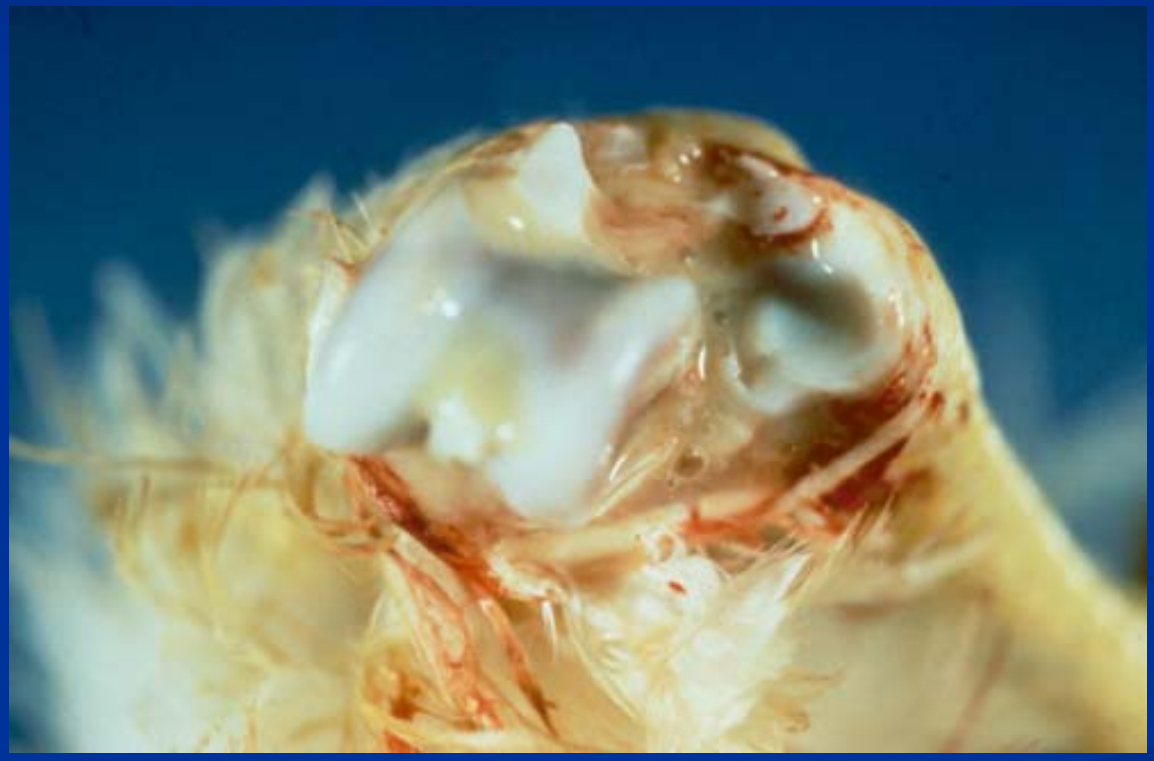


pericarditis
hepatomegaly
air sacculitis

Fowl Cholera

hepatomegaly with multifocal necrosis

Fowl Cholera



purulent
polyarthritis

Fowl Cholera

purulent
tenosynovitis

Fowl Cholera

- Diagnosis
  - Smear – stain with Giemsa
  - Culture
    - *always suspect in epizootic losses in waterfowl (domesticated or wild)*
  - Differentials for acute disease– viruses discussed above, including AI
    - waterfowl, turkeys - *Riemerella anatipestifer*
    - multiple species - *Ornithobacterium rhinotracheale* (not in Australia)
    - both G -ve rods