Mycoplasma gallisepticum (MG)

- MG primarily in turkeys > chickens
  - Turkeys - "infectious sinusitis"
  - Chickens - "chronic respiratory disease"
- Note - *M. meleagridis* only in turkeys
- Economic losses - air sacculitis leads to carcass loss
- Pathogenicity:
  - isolates vary widely in pathogenicity
  - turkeys more susceptible than chickens
  - lateral and vertical transmission

Mycoplasma gallisepticum (MG)

- Clinical signs:
  - Turkeys – infectious sinusitis
    - swelling of paranasal (infraorbital) sinuses – "bubble eye"
    - nasal discharge and foaming of eye secretions
    - tracheal rales, coughing, labored breathing
    - decreased egg production

Mycoplasma gallisepticum (MG)

Mycoplasma gallisepticum (MG)

- Clinical signs:
  - Chickens - chronic respiratory disease
    - tracheal rales, coughing, nasal discharge
    - weight loss
    - decreased egg production
    - *subclinical infections occur, with no clinical disease until birds are stressed*

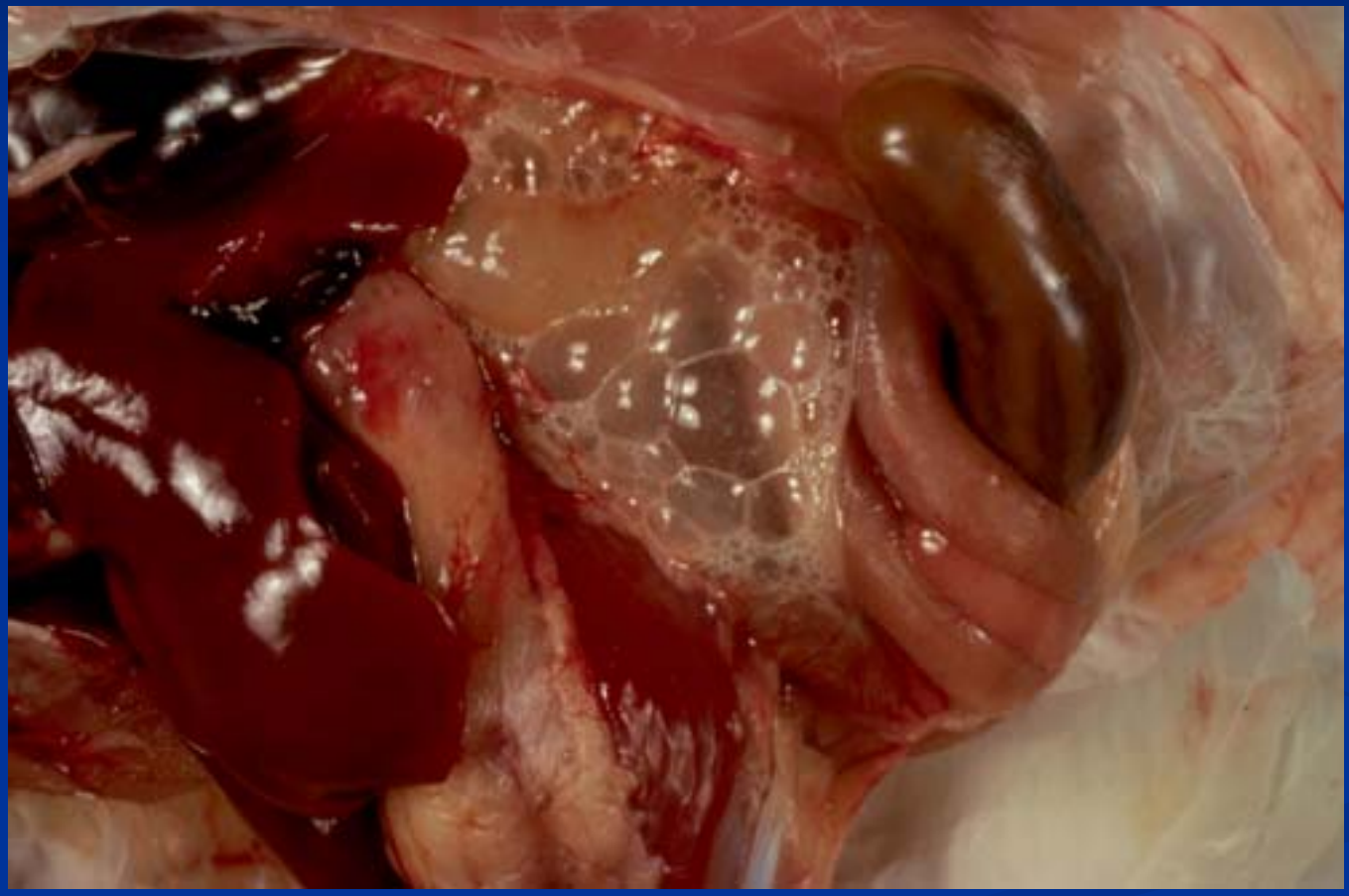
Mycoplasma gallisepticum (MG)

- Morbidity/mortality:
  - morbidity approaches 100% in turkeys and chickens
  - mortality in turkeys highly variable
  - mortality in chickens usually < 5%
  - complications by secondary bacteria (*E. coli*) may increase mortality

Mycoplasma gallisepticum (MG)

- Lesions:
  - Chickens & Turkeys
    - Chronic sinusitis, tracheitis, & air sacculitis
    - Lymphocytic infiltrates in airsacs and trachea
  - Turkeys – also may see
    - Fibrinopurulent hepatitis and pericarditis

Mycoplasma gallisepticum (MG)



air sacculitis

Mycoplasma gallisepticum (MG)

secondary *E. coli* infection

Mycoplasma gallisepticum (MG)

- Diagnosis:
  - serology (most common)
  - isolation of MG
  - PCR

- *MG is a reportable disease in commercial birds in most states*

Infectious Coryza (IC)

- acute respiratory disease of chickens NOT turkeys
- caused by *Avibacterium* (*Haemophilus paragallinarum*) *sp*
- worldwide distribution
- difficult to culture - most isolates of *Avibacterium sp* require V-factor (NAD/NADH) for growth
- high morbidity, low mortality

Infectious Coryza

- Transmission
  - inhalation of aerosols or ingestion of contaminated feed &/or water
  - carrier birds are main reservoirs
  - infections are most frequent in the fall & winter
  - disease less severe in juvenile birds
  - is not vertically (egg) transmitted

Infectious Coryza

- Clinical signs
  - facial swelling (especially periocular)
  - conjunctivitis
  - decreased egg production**
  - +/- diarrhea
  - chronic infections complicated by *E. coli*
  - poor growth**
- Pathology
  - Catarrhal bronchopneumonia
  - Airsacculitis

Infectious Coryza

Infectious Coryza

Infectious Coryza

Diagnosis:

- bacterial isolation - sinus swabs best
- PCR
- Serology-less reliable

- Multiple serovars makes vaccination difficult

Turkey Coryza (= Bordetellosis)

- NOT in Australia
- Abrupt onset of sneezing ("snicking"), oculonasal discharge, submandibular swelling, and tracheal collapse in young **turkeys (2-6 wks)**
- Causative agent is *Bordetella avium* *(G –ve)*
- Opportunistic pathogen in chickens

Chlamydiosis (Psittacosis, Ornithosis)

- Causative agent is *Chlamydophila psittaci* (formerly *Chlamydia psittaci*), an obligate intracellular bacteria
- Serotypes of *C. psittaci* naturally infecting birds are distinct from those that normally infect humans
- But - zoonotic potential – many reports – owners, handlers, veterinarians
- Worldwide distribution
- Poultry – turkeys, ducks, chickens
- Pigeons, budgies, cockatiels, parrots, macaws, etc

Chlamydiosis

- Transmission
  - primarily via aerosol & ingestion of contaminated materials (feed and water)
  - wild birds & pigeons are carriers
  - infected migratory birds (ducks, gulls, egrets) may excrete *C. psittaci* in feces

Chlamydiosis

- Pathogenicity
  - Virulence varies by strain
  - Psittacine birds, wild birds, and pigeons may be chronically infected with primarily one serotype of *C. psittaci*
    - under stress, birds may become clinically ill and shed organisms
  - In contrast, most outbreaks in turkeys are acute and explosive, involving entire flocks

Chlamydiosis

- Pathogenicity, cont.
  - 2 general categories
    - highly virulent strains
      - mortality of 1-30%
      - most common in turkeys
    - low virulent strains
  - variable morbidity (5-80%)
  - in pigeons, ducks, and some psittacine birds – accompanied by *Salmonella* infections

Chlamydiosis

- Clinical signs:
  - turkeys
    - anorexia, fever, nasal discharge, respiratory distress
    - *yellow-green diarrhea*
    - markedly decreased egg production
  - pigeons
    - unilateral or bilateral conjunctivitis
    - +/- watery diarrhea

Chlamydiosis

- Lesions:
  - Turkeys (highly virulent form)
    - Conjunctivitis, keratitis
    - Rhinintis
    - Pneumonia and fibrinous air sacculitis
    - Polyserositis - fibrinous exudate on lungs and heart
    - Hepatomegaly with fibrinous exudate
    - Splenomegaly
    - Diarrhoea

Chlamydiosis

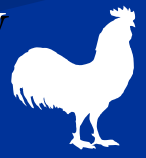
- Diagnosis:
  - ELISA (Antigen capture)
  - histopathology with special stains (Gimenez, Giemsa) or immunohistochemistry to see elementary bodies (can use conjunctiva)
  - serology
  - PCR
  - culture

Chlamydiosis

- Zoonosis:
  - "Compendium of Measures To Control Chlamydophila psittaci (formerly Chlamydia psittaci) Infection Among Humans (Psittacosis) and Pet Birds, 2002"
  - http://www.avma.org/pubhlth/psittacosis.asp

Fungal Respiratory Disease

- Aspergillosis:
  - mycotic disease of respiratory tract & air sacs
  - usual cause is *Aspergillus fumigatus* or *A. flavus*
  - also known as "brooder pneumonia"
  - fairly ubiquitous in nature (decaying matter, soil, feed grains) – source of infection
  - big problem in contaminated incubators, hatchers or brooders
  - was a big problem in emu and ostrich industry



Pulmonary Aspergillosis

- Occurrence:
  - 2 forms of aspergillosis in poultry
    - acute disease
      - high mobidity/mortality in young birds
      - mortality may approach 50-75% in poults
    - chronic disease
      - adults (especially breeder birds)
  - Also affects pet and wild birds

Pulmonary Aspergillosis

- Clinical signs
  - poults & chicks
    - dyspnea, gasping, cyanosis
    - +/- CNS signs, if spread to brain (torticollis)
    - ocular infections
      - conjunctivitis
      - uveitis/panophthalmitis

Pulmonary Aspergillosis

- Lesions - poults & chicks
  - Small, white nodules (1-2 mm) in lungs and/or air sacs
  - Mycelial growth with sporulation may appear as fuzzy plaques in air sacs
  - Granulomatous airsacullitis, pleuritis and pneumonia
- Diagnosis
  - Lesions are highly suggestive of infection
  - Cytology of nodules
  - Culture

Pulmonary Aspergillosis

- Parasites
  - Protozoa - cryptosporidiosis
  - Gapeworm (*Syngamus sp*)
  - Mites (*Strenostoma trachealotum*)
  - Flukes
  - Leeches
- Nutritional
  - Vitamin A Deficiency
    - Squamous cell metaplasia of upper respiratory tract, etc

Parasitic - Gapeworm

- *Syngamus trachea* – strongylid nematode
- Adults are red – in trachea
- Definitive host – several avian species
- Intermediate host – earthworm, snails, slugs, insects
- Larvae may migrate leading to hemorrhage and edema
- Pathology – catarrahal tracheitis with intralesional nematode