Infectious Coryza

Classic case:
Chickens, acute onset nasal /ocular discharge, sneezing, facial edema, swollen infraorbital sinuses

Presentation:
- Acute upper respiratory infection of **CHICKENS ONLY**
- Worldwide distribution
- High morbidity, low mortality
- **Developed countries** (less of a problem)
  - Primarily **layers and pullets**
  - Commercial flocks
  - California, Southeast, Northeast USA
- **Developing countries** (more of a problem)
  - Young chicks (3 weeks old+) most prevalent

Clinical Signs
- **Mild form**
  - Young chickens
  - Depression
  - Serous nasal discharge
  - Mild facial swelling
- **Severe form**
  - Young adults, older birds
  - Depression, diarrhea
  - Decreased feed and water consumption
  - Decreased growth
  - Severely reduced egg production or delayed laying
  - Sneezing, serous, mucoid or suppurative nasal discharge
  - **Swelling** of infraorbital sinuses
  - Facial edema - swollen eyelids that do not open
  - Swollen wattles and intermandibular space (especially males)
  - Conjunctivitis - Epiphora
  - Rales
    - Usually with lower respiratory tract involvement, secondary infection
    - Pneumonia, air sacculitis

**DDX:** Chronic fowl cholera, Newcastle disease, infectious bronchitis, avian influenza, avian metapneumovirus (swollen head syndrome), mycoplasmosis, infectious laryngotracheitis, vitamin A deficiency
**Test(s) of choice:**
- **Field diagnosis** – Clinical signs, lesions

- **Necropsy**
  - Inflammation and catarrhal lesions
    - Nasal passages
    - Sinuses
    - Conjunctiva
  - Subcutaneous edema
    - Face
    - Wattles
    - Intermandibular region
  - Conjunctivitis
    - Fibrinosuppurative +/- adherence of eyelids
    - Tracheitis, bronchitis, airsacculitis, pneumonia
    - Most common with 2° pathogen involvement

- **Histopathology**
  - Respiratory organs
    - Disintegration and hyperplasia of mucosal and glandular epithelium
    - Edema with infiltration of heterophils, macrophages, mast cells

- **Microscopic exam**
  - Smear of sinus exudate
    - Gram negative bipolar rods, tendency to form filaments

- **Bacterial culture**
  - Grows on blood agar, but requires ‘nurse’ colony of Staphylococcus aureus
    - Excretes V-factor
  - Microaerophilic - Incubate in candle jar or CO2 incubator
  - Catalase test is essential - *A. paragallinarum* is catalase negative
    - Nonpathogenic species, *A. avium*, may be present in chicken sinuses
    - Nonpathogenic species are catalase positive

- **Innocation of susceptible chickens with sinus exudate**
  - Signs occur within 3-5 days

- **Serologic tests**
  - Hemagglutination inhibition test (best of serologic tests)
  - Agar gel precipitation

- **PCR**
  - Superior to culture
  - Available in most developing countries
  - Can be used on live chickens
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Rx of choice:
- Supportive care
- Antibiotics
  - Antimicrobial therapy very effective
    - Must consider residue regulations when treating birds
  - Early treatment important
    - Medicate water immediately until medicated feed available
  - Antibiotics commonly used
    - Sulfonamides
    - Macrolides (erythromycin)
    - Oxytetracycline, fluoroquinolones
  - Severe outbreaks
    - Treatment results in improvement
    - May recur when medication discontinued
  - Pullets reared or housed on infected premises - preventive medication + vaccination program commonly used

Prognosis: Economically important disease
- Most birds recover in 2-3 weeks unless complicated by secondary infection
  - Recovered birds frequently become chronic carriers
  - Chronically ill or healthy carrier birds are the reservoir of infection
- Economic losses due to depopulation, decreased growth, decreased egg production

Prevention:
- ELIMINATE CARRIERS!
  - Depopulate
  - Clean, disinfect
  - Leave premises vacant a few days
- Vaccination
  - Inactivated whole cell bacterins
    - Must contain serovar present in target population
      - Serovars- A, B, C
      - Not cross-protective
    - Administer by IM or SQ injection
  - Autogenous vaccines
    - Commonly used during severe outbreaks
- Controlled exposure to live organisms
  - Sometimes used in endemic areas to immunize layers
- Strict biosecurity and sanitation protocols
  - ‘All-in / All-out’ flock management
  - Get replacements from clean farms or raised on same farm
Pearls:
- Causative bacterium: *Avibacterium (Haemophilus) paragallinarum*
- Transmission by direct contact, fomites, airborne, contaminated food and water
- **OFTEN complicated** by other diseases (*Mycoplasma gallisepticum*)

Refs: Merck Veterinary Manual, 10th ed (online): Infectious Coryza. Images courtesy of Cornell University and the Atlas of Avian Diseases,