Listeriosis ("circling disease")

Extended Version

**Classic case:** Silage-fed adult cow, head tilt, circling, asymmetric sensation loss on face

**Presentation:**

**Signalment and History**
- Adult cattle, sheep, goats, (possibly camelids)
  - **Indoors in winter** with feeding of silage
  - Extremely rare in horses
- Poultry and pet birds
- Human listeria outbreaks

**Clinical signs (mammals)**
- **Head tilt**
- **Circling**
- **Dullness**
- **Sensory and motor dysfunction of trigeminal nerve**
  - Asymmetric sensory loss on face
  - Weak jaw closure
- Purulent ophthalmitis
- Exposure keratitis
- Isolation from rest of herd
- Ocular and nasal discharge
- Food remaining in mouth
- Bloat
- Marked somnolence
- Tetraparesis, ataxia
- Poor to absent palpebral reflexes
- Difficulty swallowing/poor gag reflex
- Tongue paresis
- Obtundation, semicoma, death

**Clinical signs (avian listeriosis)**
- Often subclinical
- Older birds and poultry (septicaemia)
  - Depression, lethargy
  - Sudden death
- Younger birds and poultry (chronic form)
  - Torticollis
  - Paresis/paralysis

**DDX:**

**Mammals**
- Brainstem abscess, basilar empyema, otitis media/interna, Maedi-Visna, rabies, caprine arthritis-encephalitis, *Parelaphostrongylus tenuis*, scrapie

**Avian**
- Colibacillosis, pasteurellosis, erysipelas, velogenic viscerotropic Newcastle disease
Listeriosis ("circling disease")

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Test(s) of choice:
Mammals - Clinical signs and
- Cerebrospinal fluid (CSF) analysis
  ▪ Mononuclear pleocytosis, Increased protein
  ▪ Culture is difficult and usually unsuccessful
- Microabscesses in brain - Bacteria in lesions

Avian - Clinical signs and
- Necropsy lesions (think "necrosis")
  ▪ Necrosis on the myocardium (acute)
  ▪ Increased pericardial fluid, pericarditis (acute)
  ▪ Focal areas of necrosis and enlargement of internal organs (acute)
  ▪ If chronic, may have NO gross lesions
- Microscopic lesions - Bacteria in lesions (remember, culture is difficult)

Rx of choice:
- ABX: Penicillin, sulfonamides, tetracyclines (avian, mammals), or ampicillin for 2-4 wks
- Single dose of corticosteroids is controversial
- Relieve bloat
- SUPPORT: Fluid therapy, dietary maintenance

Prognosis: Guarded to poor
- Poor if recumbent and/or can’t swallow
- 50% if standing and can swallow

Prevention:
Complete anaerobic rendering of silage
Identify and eliminate source of infection (avian)

Pearls: Listeria monocytogenes
Most common encephalitis in dairy cattle

Absence of forebrain sx:
- Seizures, Aggressiveness
- Blindness

Zoonotic concern

Refs: Large Animal Neurology, Mayhew, 2nd ed. p225-227, Merck Manual, 10th ed (online): Mammalian listeriosis and Avian listeriosis, Center for Food Security and Public Health and Iowa State University College of Veterinary Medicine: Listeriosis, Photos courtesy Dr. Lisle George