Infectious Bovine Keratoconjunctivitis

A PowerPage Presented By

Infectious bovine keratoconjunctivitis (IBK), caused by *Moraxella bovis* is the classical cause of pinkeye in cattle. The financial impact of this disease is enormous and is primarily due to decreased weight gain, milk production, and the cost of treatment. Familiarity with pinkeye is important for the food animal practitioner and anyone taking the boards. This PowerPage will highlight the transmission, clinical signs, and treatment of IBK.

Key Points

- Causative agent of **pinkeye is *Moraxella bovis***
- Results in hundreds of millions of dollars of loss each year
- **Environmental factors** play a major role in disease transmission
- **Central corneal ulcer**

Introduction

Causative Agent

- *Moraxella bovis*
- Pathogenic strains have various types of pili and a cytotoxin
    - **Other organisms can cause pinkeye** too:
        - Chlamydia
        - Infectious bovine rhinotracheitis (bovine herpesvirus-1)
        - Mycoplasma
        - Neisseria catarrhalis
    - These can make the disease more severe or make it easier for *M. bovis* to cause a secondary infection

Environmental Factors

- **Excessive ultraviolet light (sunlight)**
    - Lack of pigmentation around eye results in UV damage and subsequent inflammation thus sensitizing eye to infection
    - Hereford cattle now bred for pigment around eyes because of pinkeye and squamous cell carcinomas
- **Flies**
    - Irritate the eye by feeding off secretions and serve as a vector
        - **Musca autumnalis (face fly)**
            - Face fly remains infected for 3 days after feeding on infected secretions
        - Musca domestica (house fly)
        - Stomoxys calcitrans (stable fly)
- Dust and plant material
    - Air-borne irritants
    - Mechanical vectors such as plant awns

- Overhead feeders more likely to irritate eyes

Transmission

- Direct contact
- **Flies**
- Inanimate objects
- Infected and asymptomatic carriers harbor infection in nasal secretions
- See higher incidence in **summer and fall** due to increased flies, UV light, and pollen production

Clinical Signs and Diagnosis

- **Younger cattle** more commonly affected
- **Conjunctivitis**
- **Blepharospasm**
- Epiphora
- Blindness due to corneal opacity or permanently following rupture
- Decreased appetite and weight loss
- Decreased milk production
- **Small opaque region in center of cornea progresses to deep central ulceration** (see image)
  - Perforation of corneal ulcer is uncommon
- Submit conjunctival swab and lacrimal secretion for culture

Treatment and Prevention

- Antibiotics
  - **Oxytetracycline (LA-200) systemically**
    - **Labeled for treatment of IBK**
  - Ceftiofur (Naxcel) SQ
  - Penicillin subconjunctivally
  - Florfenicol IM
  - Tulathromycin SQ
- Surgical intervention
  - Can perform third eyelid flap or tarsorrhaphy
- **Eliminate environmental factors**
  - Protect eyes from UV light by using glue on eye patch
  - **Control fly population** with face rubbers and ear tags
  - Grass, weed, and brush control to minimize mechanical irritation
  - Eliminate overhead feeding
- **Prevent other predisposing diseases**
  - Vaccinate for BVD and IBR
  - Isolate infected animals
- Vaccination for IBK
  - Mixed results. If both humoral IgG and secretory IgA directed at *M. bovis* antigens are present, these appear to be protective
  - **Not consistently effective therefore not yet in widespread use**