Infectious Bovine Keratoconjunctivitis
“Pinkeye”

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Infectious Bovine Keratoconjunctivitis

• Pink eye
• *Moraxella bovis* possible *Moraxella bovoculi*
IBK Complex

Etiologic Agent

Corneal Irritation

Vector – Face Flies
Etiologic agent(s)

- Moraxella bovis
- Gram negative coccobacillus
- Carrier on several mucous membrane sites
- Eyes, nasal cavity, vaginal cavity
**Etiologic agent(s)**

- *Moraxella bovoculi*
- Gram negative coccobacillus
- Carrier on several mucous membrane sites
- Eyes, nasal cavity, vaginal cavity
- Originally isolated from clinical cases in dairy and beef calves in Northern CA
Etiologic agent(s)

- *Neisseria catarrhalis*
- *Neisseria ovis*
- *Mycoplasma* sp.
- Infectious bovine rhinotracheitis (IBR) BHV-1 alpha herpesvirus
Corneal Irritation

- Fescue and other grass seed heads
- Round bale hay
- Pigweed
- Ultraviolet radiation in lightly pigmented breeds
- Dust
- IBR infection
Corneal Irritation

- Corneal damage necessary first step toward infection
- Exposure of the stroma and collagen permits bacterial pilus attachment
Pathophysiology

- *M. bovis* pilus (fimbrial) antigens
- Q pilus – necessary for initial attachment
- I pilus – necessary for persistence
- Pilus: filamentous extension that bacteria use to attach, sense the exterior environment and exchange DNA
Corneal Irritation
Factors

- Irritation of cornea
- Dusty conditions
- Ultraviolet radiation
- Flies feeding
  - *Musca autumnalis*
- Pigmentation
- Age
- Other infection
  - IBR, Mycoplasma
Transmission

- Infected secretions
  - Eyes
  - Nasal secretions
- Flies
- Inanimate object
- Asymptomatic carriers
  - ~ 1 year
Clinical Signs

- Infection rates 2 to 80% of the herd
- Peak infection rate
  - 3rd or 4th week of an outbreak
- Incubation period: 2 to 3 days
- Conjunctivitis
- Excessive tearing
- Squinting
- Decreased appetite (pain and moderate fever)
  - 7 to 17 kg lower body weight at weaning
Stage 1

- Tearing
- Photophobia
- Excessive blinking
- Conjunctivitis
- Pain: reduced feeding
- Small ulcer: central
- “Cloudy” cornea
- Unilateral or bilateral
Stage 2

- Similar to stage 1
- Larger corneal ulcer
- Greater inflammation
- Increased “cloudiness”
- Iris still visible
- Blood vessels on outside of cornea
- Edge of cornea is “pink”
Stage 3

- Ulcer covers most of the cornea
- Inflammation to inner parts
- Anterior chamber fills with fibrin
  - Yellow appearance
Stage 4

- Ulcer completely through cornea
- Iris may protrude through ulcer
Corneal Scar

- Blood vessels recede
- Initially "Cloudy" blue cornea
- Cornea may become clear
- White scar may be permanent
Treatment

• Early treatment
  – Successful outcome
  – Reduce shedding

• Systemic Antibiotics
  – Oxytetracycline
  – Ceftiofur
  – Nuflor
  – Penicillin
TREATMENT

• Local Antibiotics
  – Bulbar or palpebral conjunctiva
  – Penicillin and dexamethasone
  – Labor/expertise
Treatment > Stage 3

- Patch
- Tarsorrhaphy
- 3rd eyelid flap
Treatment

• Topical treatments
  – Tear production
  – Multiple treatments daily (4X per day)
TREATMENT — TOPICAL

• Vetericyn Plus™ Pinkeye Spray
• (0.009 % hypochlorous acid)
• Experimentally induced lesion
• 2.0 ml, twice daily application for 10 days
• Reduced pain scores, lesion circumference, and healing time
Illegal !!!
Vaccination

• Autogenous Vaccines
  – 3 commercial labs available
  Addison, Newport, and AgriLabs
  Take a culture and mail it to the lab
  pathogen grown : make a vaccine
  Back to you in ~ 6 weeks
  ~$500 for 200 doses
  Requires primary and booster immunization

Real. Life. Solutions.
Prevention

• Fly control
• Reduce irritation
  – Clip pastures, provide shade
• Separate clinical animals
• Vaccination/implants/SolidBac
  – Multi strains
  – Minerals Vit A/ nutrition
Fly Biology

• Face fly maggots develop in freshly deposited cattle manure.
• Female face flies lay their eggs within 15 minutes after it is deposited.
• The four stage life cycle takes about 15 to 25 days.
• Overwinter as adults in sheltered areas such as barns or attics and become active again in the spring.
External Parasite Control
Flies, Lice, Grubs and Ticks

Classes of Products:

• Organophosphates (Coral, Warbex, Spotton) (Organochlorine Endosulfan)

• Pyrethroid (Cylense, Durasect, Boss)

• Spinosyn (Elector)

• Avermectins (Ivomec, Dectomax)
  • Tolfenpro (Bayer Ear tag)

• Insect Growth Regulators (IGRs) and Oral larvacides
Insect Growth Regulators

- IGR
- Not an insecticide
- Interrupt or inhibit the life cycle of a pest
- Cannot reach adulthood,
- Not capable of reproducing
**EAR TAG**

- Duration ~ 5 months
- Apply when flies > 50+ / side
- 12-15 wks control
Resistance

• Early season use back rubs / topical
• Use fly tags during heavy infestation
• Use one class of drug for 1-2 yrs
• Keep records of resistance in area
• Remove tags @ end of season
Label Directions

• Always read & follow label directions
• Always wear non-permeable gloves & keep away from food
• Withdrawal periods beef & dairy
• Proper records of treatment dates products & lot #'s
Questions/Discussion
Please

THAT HUMAN
was delicious

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