Chapter 13

Common Bovine Diseases
Objectives

- Describe and recognize clinical signs associated with all common bovine diseases.
- Understand the etiology of the diseases.
- Understand and describe common treatments for bovine diseases.
- Know the common scientific names of parasites associated with cattle.
- Know the common vaccinations and their schedules associated with cattle.
Anthrax

- Causative agent: Bacillus anthracis
- Clinical signs: Often found dead, ataxia, bleeding from the orifices, dark blood, and blood fails to clot
- Diagnosis: Culture and field test blood smear
- Treatment: Penicillin or oxytetracycline may be useful; reportable
- This cause of sudden death has occurred sporadically.
- The organism will survive indefinitely in the soil and when conditions are right, multiply and cause a disease outbreak.
- A vaccine is available, but should only be used when cattle are grazed in known problem areas.
Anthrax (cont’d)
Brucellosis

- Causative agent: *Brucella abortus*, *B. melitensis* or *B. suis*
- Clinical signs: Abortion, retained placenta, endometritis, infertility, orchitis, and epididymitis
- Diagnosis: Blood agglutination tests, milk ring tests, CF tests, and Rose Bengal test
- Treatment: Test and slaughter
Blackleg

- Causative agent: Clostridium chauvoei
- Clinical signs: Often found dead, necrotic muscle, and distinct rancid smell
- Diagnosis: Clinical signs
- Treatment: Penicillin and NSAIDs
Blackleg (cont’d)
Calf Enteritis

- Causative agent: *E. coli*, *Clostridium perfringens*, *Cryptosporidium*, and *Salmonella*

- Clinical signs: Diarrhea and dehydration

- Diagnosis: Clinical signs

- Treatment: Management
Calf Enteritis (cont’d)
Calf Enteritis (cont’d)

Foot Rot

- Causative agent: *Dichelobacter (formerly Bacteroides) nodosus* and *Fusobacterium necrophorum, Corynebacterium (Actinomyces) pyogenes*
- Clinical signs: Lameness, inflammation, swelling, and odor
- Diagnosis: Clinical signs
- Treatment: Debridement, topical antibacterial agents, foot baths, and management
Foot Rot (cont’d)
Johne’s Disease

- Causative agent: *Mycobacterium avium* subspecies *paratuberculosis*
- Clinical signs: Silent, subclinical, advanced clinical, profuse watery diarrhea, and weight loss
- Diagnosis: Necropsy
- Treatment: None

Leptospirosis

- Causative agent: *L. pomona*, *L. hardj*, and *L. grippotyphosa*

- Clinical signs: Abortion storms, stillbirths, loss of milk production, septicemia, hemoglobinuria, weak neonates, and reduced fertility

- Diagnosis: Paired serum samples, histopathology, and necropsy

- Treatment: Vaccination and antibiotic therapy
Leptospirosis (cont’d)
Listeriosis

- **Causative agent:** *Listeria monocytogenes*
- **Clinical signs:** Fever, facial nerve paralysis, tongue hanging from mouth, abortions, circling, drooping ears, and blindness
- **Treatment:** Penicillin, NSAIDs, and management
Listeriosis (cont’d)
Lumpy Jaw

- Causative agent: *Actinomyces bovis*
- Clinical signs: Mass formation on the mandible or maxillary jaw or weight loss
- Treatment: Antibiotics and debridement; usually not effective

Lumpy Jaw (cont’d)
Malignant Edema

- Causative agent: Clostridium septicum
- Clinical signs: Edematous lesion, gas lesions, weight loss, fever, and toxemia develops
- Treatment: Penicillin and NSAIDs
Mastitis

- Causative agent: *Streptococcus agalactiae* and *Staphylococcus aureus*; various others
- Clinical signs: Swelling, redness
- Diagnosis: Strip cup examination, somatic cell counts, California Mastitis Tests, Wisconsin Mastitis Test, and milk culture and sensitivity
- Treatment: Antibiotics, oxytocin, and thorough milk out
Mastitis (cont’d)

Mastitis (cont’d)

Metritis

- Causative agent: *Actinomyces (Corynebacterium) pyogenes*, streptococci, staphylococci, coliforms, and gram-negative anaerobes; mixes common

- Clinical signs: Vaginal discharge, septicemia, endotoxemia, and shock

- Diagnosis: Uterine biopsy and culture

- Treatment: Antibiotics
Metritis (cont’d)
Pinkeye

- Causative agent: Moraxella bovis
- Clinical signs: Blepharospasm, lacrimation, photophobia, keratitis, conjunctivitis, and corneal opacity and ulceration
- Diagnosis: Clinical signs
- Treatment: Antibiotic therapy and isolation of sick animals
Shipping Fever

- Causative agent: *Mannheimia (Pasteurella) haemolytica* and sometimes *P. multocida*
- Clinical signs: Depression, low head carriage, wet cough, open-mouth breathing, weight loss, fever, and wheezing
- Diagnosis: Necropsy and culture
- Treatment: Antimicrobial therapy and NSAIDs

Vibriosis

- Causative agent: *Campylobacter fetus* subspecies *venerealis* or *C. fetus*
- Clinical signs: Absent, extended calving season, irregular estrous cycles, and infertility
- Diagnosis: Culture
- Treatment: Vaccines and antibiotic-treated semen
Wooden Tongue

- Causative agent: *Actinobacillus lignieresii*
- Clinical signs: Abscessation of the tongue and swelling of the ventral jaw
- Treatment: Antibiotics
Bovine Spongiform Encephalopathy

- Causative agent: Prion
- Clinical signs: Nose licking, teeth grinding, tossing of the head, snorting, exaggerated external stimuli, staring, low head carriage, ataxic, muscle tremors
- Treatment: None
Bovine Spongiform Encephalopathy (cont’d)
Dermatophytosis

- Causative agent: *Trichophyton verrucosum* or *Microsporum* spp.
- Clinical signs: Encrusted circular lesions of thickened skin
- Diagnosis: Clinical signs
- Treatment: Clears spontaneously and antifungal drugs
Trichomononiasis

- Causative agent: *Trichophyton foetus*
- Clinical signs: Embryonic death and late-term abortion
- Diagnosis: Culture
- Treatment: Separating cows greater than 5 months pregnant, culling all bulls, and replacing with virgin bulls
Bovine Respiratory Syncytial Virus

- Causative agent: RNA virus of the paramyxovirus family
- Clinical signs: Fever, anorexia, depression, increased respiratory rates, and nasal and ocular discharge
- Diagnosis: Virus isolation and paired serum samples
- Treatment: Vaccines, treat secondary bacterial infections, and supportive
Bovine Viral Diarrhea

- Causative agent: Flaviviridae family
- Clinical signs: Oral erosion and intestinal ulceration
- Diagnosis: Virus isolation, immunohistochemistry (ear notches), ELISA, PCR, and microtiter virus isolation
- Treatment: None
Foot and Mouth Disease

- **Causative agent:** Picornaviridae family
- **Clinical signs:** Erosion of the oral mucosa or lameness due to coronary band lesions
- **Treatment:** None
Foot and Mouth Disease (cont’d)

Infectious Bovine Rhinotracheitis

- Causative agent: Bovine herpes virus I
- Clinical signs: Fever, ocular discharge, mucopurulent nasal discharge, conjunctivitis, depression, cough, dyspnea, abortions, encephalitis, and systemic infections
- Diagnosis: Clinical signs
- Treatment: Vaccination and treat secondary bacterial infections
Infectious Bovine Rhinotracheitis (cont’d)
Fatty Liver Disease

- Causative agent: Overconditioned at parturition
- Clinical signs: Absent and off feed
- Treatment: IV glucose solution
Hardware’s Disease

- Causative agent: Consumption of a foreign body
- Clinical signs: Decreased milk production and fecal output, increased rectal temperature, normal or slightly elevated heart rate, dehydration, rapid and shallow respiration, walk with arched back, and grunting
- Diagnosis: History and clinical signs
- Treatment: Surgical removal, antibiotics, and magnet
Hardware’s Disease (cont’d)
Hypocalcemia

- Causative agent: Low levels of circulating calcium in the bloodstream
- Clinical signs: Sternal or lateral recumbency, muscle twitching, tachycardia, “S” shape to the neck, head resting on the hindquarters, hyperexcitable, ataxic, head bobbing, shuffling of feet, cold extremities, bloat, GI stasis, and lack of defecation
- Diagnosis: History or clinical signs
- Treatment: Calcium usually through IV treatment
Hypocalcemia (cont’d)
Hypomagnesemic Tetany

- Causative agent: Low levels of magnesium in the blood and CPF

- Clinical signs: Convulsions, stiffness, hyperexcitability, dilated pupils, frothing at the mouth, muscle spasms, and death

- Treatment: Sedation, magnesium, calcium, and management
Intersexuality

- Causative agent: Twin male and female
- Clinical signs: Abnormal internal genitalia
- Diagnosis: Measuring vaginal length
- Treatment: Culling when present
Ketosis

- Causative agent: Off feed
- Clinical signs: Weight loss, depression, arched back, decreased milk production, sweet smelling breath, constipation, and nervous licking or biting the body and surroundings
- Diagnosis: Clinical signs, Rothera’s test, and uterine ketone sticks
- Treatment: IV glucose
Lameness

- Causative agent: Various
- Clinical signs: Abnormal gait
- Diagnosis: Clinical signs, local anesthetic, ultrasound, and radiographs
- Treatment: Varies
SCISSOR CLAW
CORKSCREW CLAW

LDA/RDA

- Causative agent: Involves the abomasum moving from its normal position (suspended over the greater and lesser omenta) to the left or right

- Clinical signs: Going off feed, decreased milk production, decreased fecal output, and sprung rib cage

- Diagnosis: History and ping

- Treatment: Surgical replacement
LDA/RDA

Ping associated with left displaced abomasum
Left Displacement Caudal Location
Left Displaced Abomasum

Right Displaced Abomasum and omental tear
Polioencephalomalacia

- **Causative agent:** An induced thiamine deficiency, feeding dietary urinary acidifiers, and sulfur toxicity
- **Clinical signs:** Depression, head pressing, ataxia, cortical blindness, tremors, tetany, opisthotonos, convulsions, and paddling
- **Diagnosis:** Clinical signs and necropsy
- **Treatment:** Multiple IV injections of thiamine HCL; diuretics; and dexamethasone
Prolapse

- Causative agent: Periparturient
- Clinical signs: Protrusion of the vagina, uterus, or rectum
- Diagnosis: Clinical signs
- Treatment: Replacement and antibiotics
Retained Placenta

- Clinical signs: Retained placenta
- Diagnosis: Clinical signs
- Treatment: If infection, antibiotics, oxytocin, and prostaglandins
Rickets

- Causative agent: Improper calcification of the organic matrix in bone, lack of calcium, phosphorous, or vitamin D, and abnormal calcium phosphorous ratios

- Clinical signs: Swollen, tender joints, enlargement of the epiphysis, bowed limbs, stiffness, beads on the ribs, and arched back

- Diagnosis: Clinical signs and history

- Treatment: Correction of the diet
Ruminal Distension

- Causative agent: Gas distension
- Clinical signs: Gas distension
- Diagnosis: Clinical signs
- Treatment: trocarization, passage of a stomach tube, or surgery
Ruminal Distension Treatment
Ruminal Distension Treatment

Ruminal Distension Treatment
Urolithiasis

- Causative agent: Formation of urinary stones
- Clinical signs: Stranguria, dysuria, frequent posturing to urinate, swishing of the tail, hematuria, and abdominal pain
- Diagnosis: Rectal examination, abdominal palpation, and blood work
- Treatment: Surgery, catheter placement, and cystotomy
White Muscle Disease

- Causative agent: Vitamin E or selenium deficiency
- Clinical signs: Uncoordinated movement, lameness, paralysis of the hindlimbs, dyspnea, sudden death, and scapula rises above the level of the spine
- Diagnosis: Clinical signs and history
- Treatment: Parental injections of vitamin E and selenium
Vaccines are available for 20 to 30 infectious diseases of cattle. With the various brand names and different combinations available, the choice of vaccines can become very complicated. Calves vaccinated under 6 months of age should generally be re-vaccinated again after that age to provide a longer lasting immunity. It is important to follow the specific directions provided with a vaccine. If two doses are recommended initially, don’t count on very much protection until 7–14 days after the second dose has been given. The major diseases for which vaccines are available are categorized and briefly described in this presentation.