



Top 20 Bovine Conditions Part 1



- 🦉 Bovine questions make up 13% of the NAVLE® so it's well worth spending some quality time learning the major diseases.
- 🦉 This 4-part series on the top 20 bovine conditions will set you up for NAVLE® success.

1. Bovine lymphosarcoma

- **Classic case:**
 - Central nervous system: paraplegia, tetraplegia, paraparesis, tetraparesis; head tilt, facial paralysis, dysphagia
 - Gastrointestinal system: free gas bloat, vagal indigestion, palpably enlarged abdominal lymph nodes, melena, thickened rectum
 - Lymph nodes: 25% of cases have peripheral lymphadenopathy; can also see exophthalmos, weight loss
 - Cardiac: unexpected and sudden collapse, death, congestive heart failure, jugular pulse, distended jugular or mammary veins, arrhythmia, tachycardia, weak pulse, subcutaneous edema
- **Dx:**
 - Etiology: bovine leukemia virus (BLV), an oncogenic retrovirus
 - Gold standard: lymph node biopsy and histopathology confirms lymphosarcoma
 - BLV infection: Positive antibodies (ELISA most common) to BLV or PCR or antigen-capture ELISA
 - Note: Serologic or virologic positive for BLV does not definitely diagnose lymphosarcoma because prevalence of BLV is high and so few seropositive cases develop lymphosarcoma
- **Tx:** NO effective or legal treatment
 - Control: test and cull positive animals greater than 6 months of age in herds with a low BLV prevalence
 - Prevent horizontal spread in herds with high prevalence by changing needles, using rectal sleeves, and good fly prevention
- **Pearls:**
 - Grave prognosis for lymphosarcoma



Submandibular lymphadenopathy

- Cows w/ lymphosarcoma will not pass slaughter inspection
- Prevalence of BLV in most U.S dairy herds is high, but most are asymptomatic and their prognosis for life is good
- Upwards of 30% of infected animals will have persistent lymphocytosis serving as a reservoir for further spread
- Only approx. 5% of BLV-infected animals get lymphosarcoma

2. Ketosis

○ Classic case:

- 3 types – thin cow up to 45 days post-partum (type I), obese cow peri-partum (type II), or too much silage at any stage of lactation (silage type)
- Dairy cow 1-4 weeks post-partum with mild anorexia, low milk production, malodorous breath
- Pica or paresthesia, aggressive behavior
- Mild proprioceptive deficits with hepatic failure
- Subclinical
 - Can be common in dairy herds
 - High blood ketone levels without obvious clinical signs
 - Decreased milk production and reproductive fertility possible
 - Increased risk of metritis, displaced abomasum, early culling from the herd

○ Dx:

- Measure betahydroxybutyric acid in blood (best), milk, or urine; w/ clinical ketosis is greater than 14.4 mg/dL in whole blood
- Look for acetoacetic acid in urine with dipstick

○ Tx: Depends on type:

- Type I – simple and short term Tx: oral propylene glycol, IV dextrose
 - Corticosteroid use is controversial
 - Drives glucose into cells but also quells the immune response
 - Risky in a post-partum animal
- Type II – difficult and longer-term Tx: transfaunate and pump with liquid nutrition via ororuminal tube, IV dextrose
- Silage type – don't feed silage with high concentrations of butyric acid to pre- and post-fresh cows!

○ Pearls:

- Type I – excellent prognosis; prevent with low-protein diet, maximize energy in early lactation, and monensin
- Type II – poor prognosis; manage dry periods and dry cow nutrition to prevent obese cows, cull
- Economically important because higher culling rates, more retained placentas, decreased pregnancy rates, and decreased milk production in obese cows



Transfaunation

3. Bovine viral diarrhea (BVD)

○ Classic case:

- Unvaccinated younger cow with acute diarrhea, nasal discharge, ptyalism, ocular discharge, oral ulcers, fever, anorexia, coronitis (not all will occur)
- In-utero infection: early embryonic death, cerebellar hypoplasia, developmental defects, abortion
- Persistent infection (PI): if a cow becomes infected by a NON-cytopathic strain of virus between 40-120 days gestation, or calf is from a PI dam, the calf will be PI and act as a reservoir; if infected by cytopathic strain later in life, cow gets mucosal disease
- Mucosal disease: acute signs and fatal with 2-4 weeks

○ Dx:

- Etiology: bovine viral diarrhea virus, a *Pestivirus*



Ptyalism

- Gold standard: virus isolation however PCR on milk, serum, whole blood, tissues or semen is the rapid test of choice
- Antigen-capture ELISA on blood or tissue
- Often requires paired serology to definitively diagnose recent infection vs. exposure or vaccination
- Virus isolation or histopath at necropsy
- Ear notching for PI cattle (PCR or ELISA): most commonly done on calves
- **Tx:**
 - Supportive care for simple adult, unvaccinated cows showing signs of diarrhea, fever and anorexia; prognosis for these animals is good
 - None for calves born with developmental defects or animals with mucosal disease
 - Prevention: Test and remove PI calves; vaccinate
- **Pearls:**
 - Grave prognosis except for adult with mild, non-mucosal disease
 - Worldwide, economically important pestivirus
 - Not zoonotic but very contagious

4. Omphalitis, septicemia, joint ill, meningitis

- **Classic case:**
 - Omphalitis: fever with swollen, painful umbilicus and patent urachus +/- GI pain with secondary peritonitis
 - Septicemia: calf less than 2 weeks old with fever, diarrhea, depression, systemic compromise
 - Joint ill: lameness with painful, swollen, hot joint
 - Meningitis: opisthotonus, hyperesthesia
- **Dx:**
 - Omphalitis: palpate and ultrasound umbilical structures
 - Joint ill: ultrasound/radiograph affected joint, aspirate and culture joint fluid
 - Meningitis: CSF aspirate shows increased WBC count and protein
- **Tx:** antimicrobials and...
 - Omphalitis: surgical removal for advanced cases
 - Joint ill: lavage joint then instill antibiotics; analgesics/NSAIDs
 - Meningitis and septicemia: systemic supportive care, NSAIDs, diazepam if seizures
 - Prevention: make sure calves get a minimum 500 grams IgG on first feeding and 4 L colostrum by 4 hours of age; clean calving environment
- **Pearls:**
 - Prognosis variable: good for omphalitis, poor for others
 - Measure total protein at 24 hours' age: adequate colostrum transfer if greater than 5.5 g/dL



Joint ill - septic metatarsophalangeal joint

5. Traumatic reticuloperitonitis

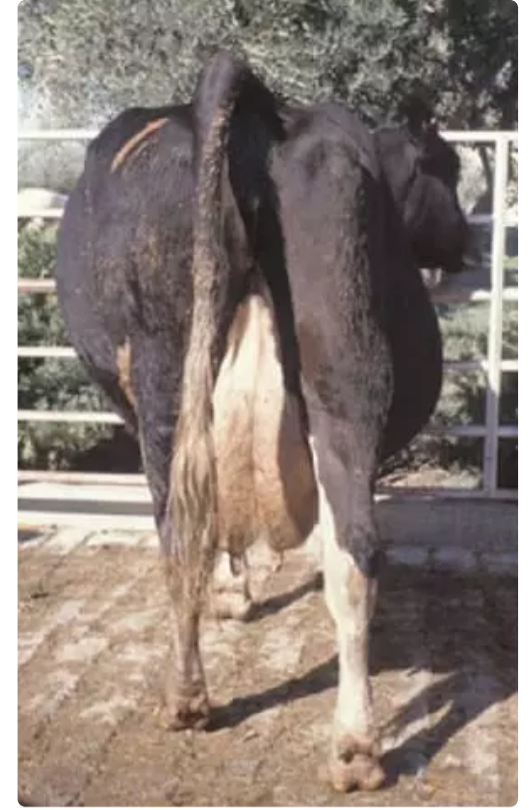
- **Classic case:**
 - Acute anorexia and agalactia, unwillingness to move or lie down, arched back, fever, positive grunt test
 - +/- Papple shape (pear on right and apple on left) and scant feces if secondary vagal indigestion
 - Sloshing fluid sound left thoracic cavity in severe cases with pericarditis
 - Rare in pre-ruminating heifers
- **Dx:**
 - Positive withers grunt test: pinch withers while listening for a vocalization with stethoscope
 - Look for pain response while ballotting left ventral abdomen
 - Abdominocentesis: purulent or serosanguineous fluid
 - Cranial abdominal ultrasound or radiography
- **Tx:** Similar outcomes with medical and surgical, better prognosis if treated early
 - Medical: magnet, laxatives, antimicrobials, analgesics
 - Surgical: rumenotomy, antimicrobials, magnet

- Prevention: ONE magnet per cow given at 400-600 pounds weight can prevent
- Pearls:
 - 75% survival; bad outcome with secondary vagal indigestion, diffuse peritonitis, and pericardial involvement



Images courtesy of Dr. Lisle George and [The Yorck Project](#) (3000-year old image of a farmer plowing with cattle, Egypt)

Ruminants



Papple shape