



Infectious Diseases of the Blood and Lymphatics

PHYSICAL EXAMINATION: REVIEW





Blood and Lymphatic System Examination

- **A complete clinical examination with emphasis on the blood and/or lymphatic systems should be conducted**
- **The examination should include:**
 - Evaluation from a distance
 - Collection of a complete history from the owner
 - Thorough physical examination
- **Once the examination is completed the veterinarian should consider completing an assessment that includes:**
 - Subjective findings – observations
 - Objective findings – physical examination parameters
 - Assessment – conclusions based on subjective and objective findings
 - Plan – establishing a plan to confirm the clinical diagnosis and therapeutic plan





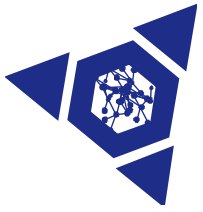
Physical Exam: Blood and Lymphatics

- **Alterations in the blood can include:**
 - Anemia caused by destruction, loss, or decreased production of red blood cells
 - Leukopenia (low white blood cell count) caused by increased use, destruction, or decreased production
 - Leukocytosis (high white blood cell count) caused by increased production
 - Thrombocytopenia (low platelets) caused by increased use or decreased production
- **Alterations in the lymphatic system**
 - Lymphatic obstruction causing edema and/or effusion in body cavities
 - Lymphocytosis (high lymphocyte count) caused by infection and neoplasia
 - Enlarged lymph nodes

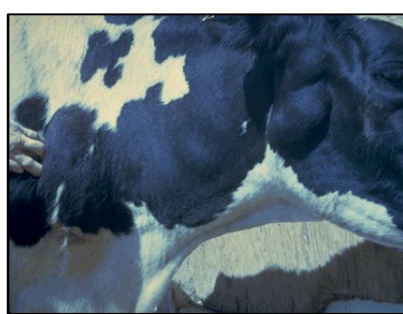
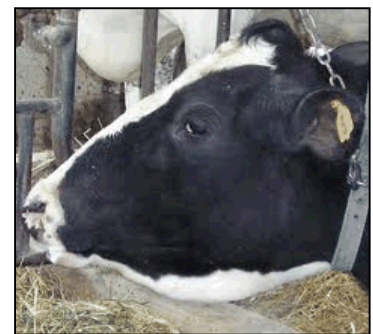
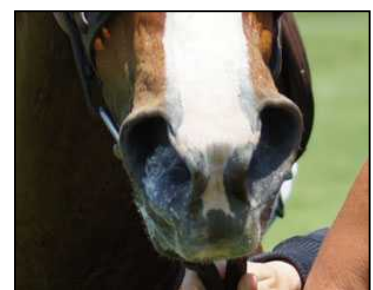


Examination from a Distance: Blood and Lymphatics

- **The animal being examined should be handled as little as possible to allow for a more accurate assessment**
 - Animal should be as relaxed as possible
- **Examination of the respiratory system from a distance should include:**
 - Breathing pattern: Does breathing require more work than normal? Are the respirations shallow? Is the respiratory rate rapid?
 - **Animals with anemia or pulmonary edema will appear to have breathing problems**
 - Stance: Is the animal standing with its elbows outward? Animals having difficulty breathing have base wide stance with elbows pointing outward. Does pain seem to be associated with breathing?
 - Mucous membrane color: Are they pale or yellow?
 - Unusual bleeding: Blood from the nose, anus, mouth, excessive bleeding after an injection or wound
 - Weakness
 - Edema
 - Visibly swollen lymph nodes
 - Ataxia, depression, unusual behavior

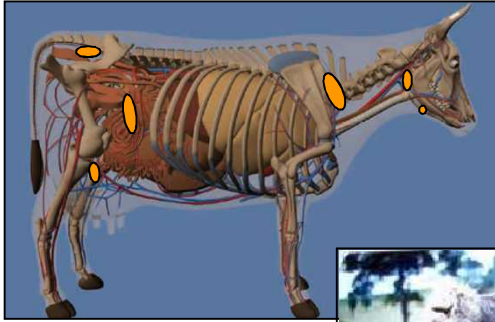


Examination from a Distance: Blood and Lymphatics





Examination from a Distance: Blood and Lymph Systems



- **Mucous membrane color**
- **Swellings in the region where lymph nodes are located**
- **Ventral edema under the mandible, brisket area, or ventral abdomen**
- **Jugular vein distention or pulsation**
- **High respiratory rate or shallow painful respirations**
- **Diarrhea**
- **Bloody discharge, bloody diarrhea or excessive bleeding**
- **Central nervous system signs like ataxia, behavioral changes, depression**
- **Swelling in any of the four limbs**



Blood and Lymph System: Physical Examination

- **Evaluate for anemia**
 - Anemia can be caused by hemolysis, blood loss, or failed production
 - Evaluate the mucous membranes of the sclera, nares, and mouth for color and dryness
 - **Yellow mucous membranes indicate elevation of bilirubin**
 - Sources of bilirubin are damaged red blood cells and liver
 - **Pale mucous membranes are indicative of anemia**
 - Are the nares flared indicating the animal is working harder to breath
 - Mucous membrane moisture – dry membranes indicate dehydration
 - Respiratory and heart rates may be elevated with severe anemia
 - Neurological signs may be present with severe anemia





Blood and Lymph System: Physical Examination

- **Edema assessment**

- Edema will follow gravity and will therefore be apparent ventrally
 - The most common sites of edema are the mandible, the ventral abdomen, the brisket, and the limbs
- Causes of edema
 - Increased hydrostatic pressure – usually caused by heart failure
 - Vasculitis – commonly caused by immune mediated reaction or infection
 - Lymphatic obstruction – caused by infections affecting the lymphatics or masses obstructing the lymphatics
 - Decreased oncotic pressure – caused by low serum protein





Blood and Lymph System: Physical Examination

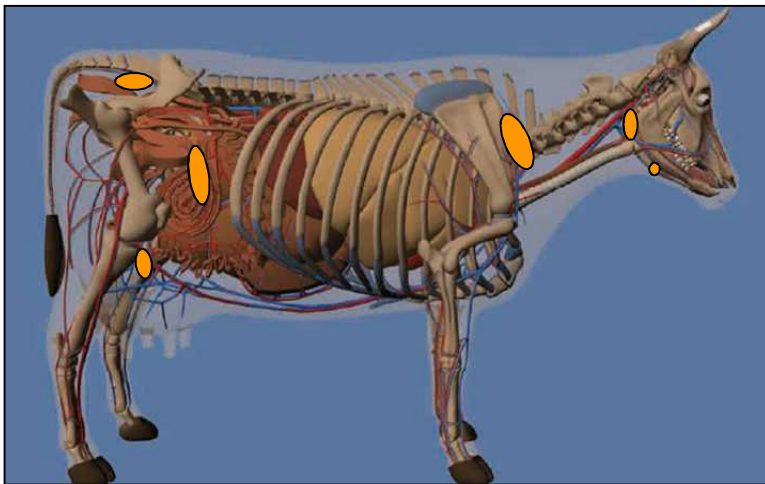
- **Assessment for bleeding disorders**
 - Evaluate sclera, mucous membranes and hairless areas for evidence of hemorrhage
 - Evaluate orifices for evidence of hemorrhage
 - Evaluate urine and feces for presence of blood





Blood and Lymph System: Physical Examination

- **Assess lymphatics by evaluating the lymph nodes**
 - Lymph nodes
 - Submandibular, parotid, suprascapular, prefemoral, iliac, and supramammary can be palpated
 - Assess for size, pain, and symmetry of the swelling





Assessment and Plan

- **Make note of all subjective and objective findings**
- **Assessment:**
 - Compile the results of your findings and develop a list of differential diagnoses
- **Plan:**
 - Use your assessment to develop a plan
 - Additional diagnostic testing to confirm or rule out a diagnosis
 - Treatment plan
 - Address epidemiology and transmission concerns if appropriate