

# The Veterinary Link

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## Heart diseases

When thinking about cattle diseases, farmers, ranchers and even veterinarians seldom consider heart disease when they first deal with a sick animal. Although

diseases of the heart are not the most common cattle diseases, a number of heart problems can cause occasional losses.

### Identifying heart defects

Veterinarians and producers occasionally encounter calves that are born with heart defects and cattle that develop heart problems as a component of other diseases. Most signs of heart disease are shared with other more common causes of disease, and these include depression, weight loss, diarrhea, coughing, fluid accumulation under the jaw and sudden death. Symptoms that are more suggestive of heart disease include murmurs, muffled heart sounds, irregular heart rhythms and abnormal pulsing of the jugular veins.

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Calves that are born with serious heart defects often exhibit poor growth and are unlikely to thrive. Veterinarians can usually identify congenital heart defects with a thorough physical examination, but some cases require use of ultrasound or other more advanced techniques. Most cases of serious heart defects result in the death of the calf and, although theoretically possible, treatment is very expensive and not likely to be attempted.

A heart problem that many cattlemen will recognize is hardware disease. Hardware disease (also called traumatic reticulopericarditis) is the result of a sharp metal object being swallowed, settling in the reticulum and then penetrating through the reticular wall and into the heart. If metal objects such as wire or nails are swallowed while grazing or eating harvested forage, its heavy weight causes it to fall to the reticulum (the first compartment of the stomach). The reticulum and heart are positioned very close to each other. If the metal penetrates the reticulum due to normal contraction of the rumen, it is likely to not only cause damage to the heart or its lining, but also to drag in germs that will start an infection around the heart.

In many cases, the first symptoms are general and include going off-feed and decreasing activity. If the animal is examined closely, a veterinarian may detect a heart murmur or abnormal blood flow. More proof that hardware disease is causing the problem requires identifying fluid accumulation around the heart via ultrasound or fluid

collection with a syringe and needle; or, more commonly, by surgically opening the belly wall and finding the offending metal.

If cattle can be treated very early, before much damage has been done, some may survive and return to normal production after surgical removal of the metal and several weeks of antibiotic therapy. If signs of heart disease such as distended jugular veins or heart murmurs are present, the likelihood of a positive outcome is much less.

Prevent hardware disease by keeping all metal picked up and away from cattle. In addition, a bolus-shaped magnet can be administered to each animal using the same technique as “pilling” with a balling gun.

### **Infections**

There are four thin valves in the heart that control the flow of blood. If bacteria circulate in the blood and land on one or more of these valves, an infection will cause them to thicken and become mishapen. This disease is called bacterial valvular endocarditis. The most common diseases that serve as the original source for persistent bacterial exposure include mastitis, liver abscesses, navel ill and hardware disease. Cattle that have recurrent fever and evidence of one of these other diseases — and also have signs of heart disease such as murmurs, rapid heart rate, or heart beat irregularities — may have endocarditis.

Diagnosis early in the disease is difficult, but if treatment is started before severe damage has occurred (often before even mild signs of heart disease), long-term (4 weeks or more) treatment with antibiotics may allow recovery. As signs of heart failure develop, such as fluid accumulation under the jaw, or distended or visibly pulsating jugular veins, the likelihood that the animal will survive and be healthy enough to be productive is very low.

Lymphosarcoma is a tumor-producing disease that can be initiated by the bovine leukemia virus (BLV). The signs of disease associated with the presence of a lymphosarcoma tumor in the heart muscle will vary depending on part of the heart involved and the size of the tumor. There are blood tests to determine if cattle have been exposed to the virus, but because only about 5% of cows with the virus ever develop lymphosarcoma, a negative blood test can eliminate the probability of lymphosarcoma, but a positive test only makes the diagnosis possible. There are no effective treatments for lymphosarcoma, so affected cows will not likely survive, and the final diagnosis is made after death.

### **Mineral imbalances**

Calves or even cows that develop severe diarrhea or other diseases of the digestive tract can have imbalances of electrolytes (minerals) that can cause the heart to not beat with a regular rhythm (atrial fibrillation). In these cases, the heart rate will vary from normal to very fast. Treatment is usually directed at the

digestive tract disease. If the underlying acid/base and electrolyte balance can be restored, the heart problems are likely to improve.

Selenium or vitamin E deficiency is called white muscle disease and can affect either skeletal muscle or the heart muscle. Both forms tend to affect the young but have been suspected in yearlings and adults. White muscle disease should be considered anytime a young calf from a

geographic area with selenium-deficient soil/feedstuffs has signs of heart disease. Prevention is aimed at proper supplementation of selenium and/or vitamin E in the feed or possibly as an injection.

Other less common causes of heart failure are diagnosed occasionally in cattle. These causes are usually identified when examining the body of a cow or bull that has died of unknown causes. Because most

causes of heart disease in cattle are not preventable and treatment is not practical, diagnosis of death due to heart disease is mostly important as an indication that other, preventable diseases were not the cause of death.

