

HARDWARE DISEASE

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Hardware disease results from perforation of the reticulum (honeycomb or second stomach) following swallowing of a sharp object. When the object penetrates through the reticulum wall, there is contamination of the peritoneal cavity and peritonitis results. In other instances there may be penetration of the diaphragm resulting in pleuritis. If the sharp object penetrates the pericardial sac (sac surrounding the heart), a pericarditis results.

In most cattle, metallic objects are found in the reticulum. Hardware disease incidence has increased due to the use of chopped feeds, feed contamination, improved diagnostic techniques or a combination of all three.

Sharp Objects Cause Hardware Disease

Small or round objects in the rumen or the reticulum usually cause no ill effects. Sharp objects such as nails, wire, screws or pins will injure the lining of the stomachs, resulting in infection and inflammation. This condition is also referred to as traumatic gastritis. The muscular contractions of the stomach cause sharp objects to penetrate the stomach wall resulting in injury to any of the surrounding organs, such as heart, diaphragm, lungs or liver.

Sources of Metal

The usual source of metals is the feed. The animals eat rapidly and are not able to sort foreign objects from their feed.

Sharp objects get into hay or feed through the process of baling, from fence wire, the metal clips holding wire onto an electric fence, the moving of portable fences, nails, screws or staples from fences or farm equipment. Old barbed wire left hanging on fences frequently ends up in the feed of livestock.

Any metal materials may become dangerous upon passing through the burr or hammer mill during feed processing.

Cases of hardware disease are frequently encountered in herds housed in newly constructed or remodeled barns. Careless handling of nails or screws should always be avoided.

The wire tag holders of feed sacks, bristles from steel barn brooms and similar sharp objects have been known to cause traumatic gastritis. Good livestock management always requires positive effort to keep metal materials out of cattle feeds and their surroundings.

Symptoms of Hardware Disease

Early detected signs are sudden loss of appetite and a sharp drop in milk production. The affected animal may move slowly with an arched back. The elbows bow outward. There will be decreased rumen movement or chewing. Groaning could occur upon defecation, urination, getting up or lying down.

The animal may have diarrhea or the feces may be scanty and firm. The animal may stand with the



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front feet placed on an elevated area to release the pressure of the viscera on the inflamed area. The body temperature is usually elevated. Swelling may be noted under the jaw, at the brisket and hock joints. Males will hesitate to breed.

The various symptoms of hardware disease often appear following calving as a result of the muscular contraction required to expel the calf. These contractions often force the metal object deeper into the organs adjacent to the stomach.

Signs of indigestion, ketosis, peritonitis, pneumonia, milk fever, kidney infection and abomasal displacement, impaction or twisting may resemble hardware disease. Electronic metal detectors may be used to determine the presence of metallic objects inside an animal. They are of limited value because cows may have metallic objects in their stomachs that, because of their shape, do not penetrate the stomach wall. A positive reading on a metal detector only indicates the presence of metal and not its size or shape. Symptoms, history and laboratory procedures are necessary for a definite diagnosis.

Prevention and Treatment

Prevention is two-fold. It involves placement of permanent magnets in the reticulum of animals at

risk; it also requires avoiding the use of baling wire and constant cleaning of premises to make sure that sharp metal objects do not contaminate the feed. In addition, powerful magnets should be placed in feed grinders or mixers to trap metal objects.

The only sure cure for hardware disease is surgical removal of the offending metal piece. Surgery will be successful only if a diagnosis is made before the condition has progressed to the point that damage has been done to the heart or other organs. Medication with antibiotics or sulfonamides will give only temporary relief. Some animals will recover without treatment but usually this is only temporary.

Remember these points:

- Hardware disease can be prevented through good management procedures.
- Veterinary consultation when hardware disease is suspected will be valuable in making an early diagnosis and in correcting the condition.
- Timely surgery is the only sure cure.

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