

# Hardware Disease of Cattle

by **Bonnard L. Moseley**

**H**ardware disease is produced by a sharp object that pierces the stomach wall and gains access to the heart.

A sharp object, such as a nail or piece of wire, may perforate into the heart sac. The object lies originally in a chamber of the stomach known as the reticulum. The reticulum “catches” all heavy objects that are ingested; feed and lighter material pass back into the rumen. When muscles contract, the “hardware” may be forced through the wall of the reticulum, diaphragm and heart sac.

Hardware disease is a common term used for traumatic gastritis and traumatic reticulitis.

From 55 to 75% of the cattle slaughtered in the eastern United States have been found to have hardware in the reticulum. However, no damage or perforations of the reticulum were evident.

Hardware may be present and yet produce no damage to the digestive system. Baling twine has replaced baling wire to a great extent, decreasing the noted frequency of hardware disease.

During pregnancy, the rumen and reticulum are displaced forward. At the time of calving, forceful abdominal movement may cause the initial perforation or movement of the hardware into the heart. Older cattle are more often affected with the condition than young ones.

## Clinical symptoms and diagnosis

You may notice that the cow has a poor appetite, is somewhat depressed and is reluctant to move. Cattle seem to have indigestion and show signs of pain when defecating.

If perforation of the heart has occurred, fluid, due to infection, may accumulate around the heart

and produce abnormal heart sounds. The brisket may be quite flabby due to a large amount of fluid in it.

The cow may also be bloated. These symptoms may subside or disappear within one to seven days, but may reoccur shortly afterwards.

If the cow is slaughtered and the reticulum and heart are carefully examined, it may be possible to find a nail or wire protruding through the wall of the reticulum into the heart. However, the hardware may have been completely digested over a period of months and thus not be present.

Sometimes abscesses or adhesions may be present between the reticulum and diaphragm, indicating a perforation had been present. Normally, the reticulum and diaphragm are not bound to each other.

## Treatment

If hardware disease is diagnosed by a veterinarian and the animal has little or no value other than for market prices, slaughter may be recommended. If the animal is for breeding purposes or is a dairy cow, several treatments may be beneficial.

Elevating the forelimbs six to eight inches with a platform may stop forward movement of the nail or wire from the reticulum. This is a slow process; the limbs should be constantly elevated for 10 to 20 days. Antibiotics will help limit the spread of infection.

If the animal is quite valuable, rumenotomy may be recommended. This procedure involves a surgical approach to the interior of the reticulum. A surgical incision is made

alongside the last rib, then the hand is extended behind the ribs to the junction of the reticulum and diaphragm.

Foreign objects, adhesions, etc. may be palpated. If a foreign object is palpated, an incision is made into the ruminal wall. The object is then removed manually from the reticulum.

## Prognosis

The prognosis, or final outcome, in hardware disease varies with the amount of infection present, how long the condition has been present and the individual animal. The attending veterinarian considers several factors before making a final prognosis. As a general rule, 60 to 75% of affected animals can be returned to useful function if the disease is detected and treated early.

## Prevention

Using magnets in the reticulum has become a popular preventive routine for hardware disease, especially in the dairy breeds. The magnet is administered with a stomach tube or balling gun, much like a large bolus or pill.

The magnet simply keeps foreign metallic objects adhered together in a ball, reducing the chances of their penetrating the reticulum. Of course, the best preventive measure is keeping feed bunks, pastures, cow lots, etc. free of potentially hazardous objects. **HW**

**Editors Note:** Article was first published by University of Missouri Extension by Bonnard L. Moseley, University of Missouri College of Veterinary Medicine.

