



River Valley Veterinary Clinic

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Hemorrhage Bowel Syndrome

Hemorrhagic Bowel Syndrome (HBS) is a complicated disease of adult, high producing dairy cattle that falls under the category of diseases that are not fully understood. The true cause of HBS is unknown and has never been replicated successfully in a research setting, which makes it very difficult to study. It is thought to be from a combination of multiple factors, and the bacteria *Clostridium perfringens* Type A and the fungus *Aspergillus fumigatus* are thought to contribute to the disease. *Clostridium perfringens* Type A is found naturally in the gut and intestines of a healthy animal, but higher levels have been found in cases of HBS. *Aspergillus fumigatus* is common in feed and forages.

HBS occurs mostly in dairy cattle, specifically some of the best cows in the barn. They are the high producing animals, in their third lactation or greater, less than 100 days in milk (reaching their peak milk production), eating a high energy TMR and often on rBST. Although HBS incidence in most herds is <10%, given the high production animals it often affects, the financial impact can be quite large.

When an animal acquires HBS, localized lesions of dead and bleeding segments of intestine form rapidly. The bleeding is quite extensive and forms a large blood clot, filling the entire diameter of the intestine, creating an obstruction to all food and water upstream. The cow will quickly go off-feed, drop in milk, become depressed and her rumen motility will slow. Her abdomen will become distended and she may become colicky - kicking at her belly, arching her back, and shifting weight on her back legs. She will initially have normal manure, but will decrease to very little or nothing, and what is present may be dark and tarry, which is actually digested blood. There may be actual blood clots in the manure as well. Rectal palpation by your veterinarian may find palpable firm, distended loops of intestine.

The intestinal lesions spread quickly through the entire thickness of intestine. Toxins spread, causing peritonitis in the abdominal cavity and toxemia in bloodstream within 24-48 hours, and the cow's condition will worsen rapidly. Due to blood loss she will be dehydrated and pale, with a high heart rate and fast breathing. Facing peritonitis and toxemia, she will be weak and go down, her limbs will be cold and her internal body temperature will drop. Almost all cows with HBS die within 48 hours.

In an individual animal, an HBS diagnosis is confirmed via abdominal ultrasound, exploratory surgery or post-mortem. Confirmation of a herd related problem involves a careful records analysis to identify previous cases in addition to sampling rumen pH's, serum electrolyte levels and bulk tank MUN. Other diseases that cause similar initial symptoms need to be ruled out, such as abomasal ulcers, indigestion, and enteritis from *Salmonella*, BVD or winter dysentery.

Treatment options for HBS are limited and the death rate is very high: 77-100% death loss of affected animals. High volumes of IV fluids and electrolytes rehydrate and reduce the damage to the kidneys. A non-steroidal anti-inflammatory (NSAID) such as Banamine will also reduce the effect of *Clostridium perfringens* Type A toxin in the blood. High doses of penicillin help control bacterial overgrowth. *Clostridium perfringens* Type C and D antitoxin may provide cross-protection to reduce the Type A toxin. An abdominal exploratory allows your veterinarian to locate the blocked loops of intestine and massage the bowel to break up the blood clot and encourage it to pass. The intestines may need to be opened to physically remove the blood clot or an entire section of dead intestine will be removed and the remaining segments sewn together. Early diagnosis of HBS with surgery to massage the blood clot carries the best prognosis for survival, but the risk of recurrence is high, especially in the first 12 months.

Since the cause of HBS is unknown, there are no good prevention methods available. However, it is possible to manage the risk factors, such as maintaining a consistent diet to ensure proper abomasal and intestinal motility in high producing cows. This includes consistent components, amount, moisture, digestibility, access, quality and mineral/buffer availability. Proper timing of group changes and quiet handling also influences gut motility. Any rapid changes could encourage *Clostridium perfringens* to grow, alter motility and increase gas production. Herds with a higher incidence of HBS could consider vaccinating with *Clostridium perfringens* Type C and D which may

provide some cross protection against Type A, or could use *Clostridium perfringens* Type A toxoid. However, there has been no research on either that provides supporting evidence in preventing HBS. The Omnigen AF mold inhibitor could be incorporated into the TMR to inhibit *Aspergillus fumigatus*, but once again there isn't any research supporting its use as a preventative.

Fortunately for producers, HBS is still fairly uncommon. Other diseases, such as ulcers, indigestion and enteritis are much more likely to be the diagnosis when a cow develops the initial symptoms, but it is important to keep HBS on the list of possibilities given the severity of the disease.
