

Vet Call

by Bob L. Larson, DVM, University of Missouri



Calf diarrhea caused by cryptosporidia and coccidia

Cryptosporidiosis is an important cause of diarrhea in calves and humans.

Cryptosporidium parvum is related to the organisms causing coccidiosis in cattle, but there are some important differences between cryptosporidiosis (crypto) and coccidiosis.

1. Coccidia organisms have a longer life cycle than crypto organisms. Coccidiosis is not usually seen in calves until they are about 4 weeks old; whereas, the life cycle for cryptosporidiosis allows this organism to cause disease in calves as young as 5 days old.
2. Coccidiosis can be treated with sulfa drugs and amprolium and can be controlled with Deccox®, Bovatec® and Rumensin®. Cryptosporidiosis is much more difficult to treat because, at this time, no drugs are effective in killing the organism.
3. Coccidia are considered host-specific (i.e., only cattle coccidia can infect cattle); whereas, *Cryptosporidium* species infect a wide range of hosts.

■ Cryptosporidiosis

Cryptosporidiosis is passed from one animal to another orally via ingestion of an immature form of the organism present in fecal material. Infected animals shed the organism within three to five days of

infection. Crypto organisms can survive for many months in the environment.

The signs that a calf may have cryptosporidiosis can vary from loss of appetite to mild diarrhea to severe, watery diarrhea and debilitation. Feces often contain blood, bile, mucus and undigested milk. Dehydration and loss of body fat are common.

The disease appears to last four to 10 days and is self-limiting in animals with adequate immune systems. Most fatal cases of cryptosporidiosis occur when a calf also is infected with another diarrhea-causing organism at the same time (e.g., enterotoxigenic *E. coli*, rotavirus or coronavirus).

A diagnosis of cryptosporidiosis can be confirmed in live calves by examining under the microscope a specially stained fecal sample. In calves that have recently died, microscopic examination of the gut wall can confirm a diagnosis.

Proper techniques should be utilized to identify other diarrhea-causing germs even when the suspicion of cryptosporidiosis infection is great; mixed infections are common and contribute to the severity of disease.

Fluid replacement is the primary treatment for cases of cryptosporidiosis in

calves. Because of the long duration of the disease (up to 10 days), many days of therapy may be necessary. Because emaciation is so prevalent in this disease process, milk must continually be offered. Besides maintaining electrolyte and fluid balance, small quantities of whole milk should be administered frequently. Calves should be kept warm, dry and well-fed.

No drugs are available in the United States for treatment of cryptosporidiosis in cattle. Lasalocid (Bovatec) and decoquinat (Deccox) have not been shown to treat effectively or to prevent the disease in a limited number of field trials.

Cryptosporidia organisms are resistant to disinfectants, even chlorine bleach, and survive in the environment for long periods of time. (They may or may not be destroyed by freezing and drying.)

A recent study at North Carolina State University found that calves can be protected against cryptosporidiosis by receiving colostrum from dams immunized against the organism. The cows were injected three times with the antigen at two-week intervals. Although this initial method for protection may not be practical for many herds, vaccines may be an effective control measure in the future.

To control an outbreak, affected calves should be moved away from other animals, and feces should be removed regularly to decrease exposure of other calves. Strict cleanliness is helpful in minimizing severity of infection, but prior environmental contamination is difficult to overcome.

Adequate colostrum intake is important to prevent secondary invaders from making the situation more severe.

Cryptosporidia organisms are infectious to humans, so be careful when handling infected calves. Hospitalization is occasionally necessary, and the physician should be informed that you have been handling crypto-infected calves.

■ Coccidiosis

As mentioned earlier, the organisms that cause cryptosporidiosis and coccidiosis are related; however, coccidiosis is not a cause of



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Coccidiosis can occur in calves any time after about 21 days of age; whereas, cryptosporidiosis can cause disease in calves as young as 5 days.

diarrhea in very young calves. Coccidiosis can occur in calves any time after about 21 days of age, but the disease is more common in calves several months of age.

Coccidiosis is caused by a small organism in the protozoan class. This parasite invades the cells of the intestinal tract and causes disease when many intestinal cells are damaged.

The symptoms of coccidiosis are diarrhea or soft feces containing blood, a rough hair coat, poor weight gain, rectal straining or prolapse, and — in occasional severe infections — nervous system problems, such as staggering and seizures.

Although other diseases will cause a bloody diarrhea, coccidiosis is a common culprit if blood is found in the feces.

Outbreaks of the disease are most common in calves stressed by weaning, bad weather or malnutrition.

Good animal-husbandry practices to improve sanitation and to reduce stress and proper use of anticoccidial drugs are the only effective means of controlling the disease. Limiting exposure to the organisms is of prime importance because using anticoccidial drugs in a heavily-infected environment provides marginal control.

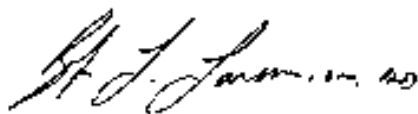
A number of treatment and control drugs are available. Each class of drug acts on the organism at a different stage of its life cycle.

Ionophores affect the later stages of the life cycle and are generally less successful in stopping clinical signs of disease than other drugs that act early in the life cycle. However, ionophores are fairly effective in preventing clinical cases in animals that do not show signs of the disease when started on the drug.

Decoquinatate is effective at preventing clinical signs of coccidiosis and is commonly fed for at least 28 days (to break the life cycle) during periods when coccidiosis is likely to be a hazard, such as after weaning or after shipping.

Amprolium can be administered in the feed or water and can be used at a high dosage for five days to treat active cases of coccidiosis, or it can be fed at a reduced dosage for 28 days to prevent disease.

Sulfa products kill coccidia organisms and are often used to treat individual cases.



e-mail: larsonr@missouri.edu