



UNIVERSITY OF KENTUCKY

*D r e a m • C h a l l e n g e • S u c c e e d*

LIVESTOCK DISEASE DIAGNOSTIC CENTER

## Winter Dysentery

All LDDC/Breathitt Veterinary Clients-

This is the perfect time of the year for a viral disease known as Winter Dysentery. We've recently seen a case of winter dysentery here at the LDDC. Winter dysentery results in a very acute onset of profuse watery diarrhea in adult cattle. Typically taking place in the winter months from November through March, more common in the northern U.S. It has been observed in beef and feedlot cattle, and rarely occurs in successive years within a herd, but can occur in intervals of 3-15 yrs.

### ***From the Merck Veterinary Manual:***

Winter dysentery is an acute, highly contagious GI disorder that affects housed adult dairy cattle, primarily during winter. Clinical features include explosive diarrhea (sometimes accompanied by dysentery), a profound drop in milk production, variable anorexia and depression, and mild respiratory signs such as coughing. The disease has a high morbidity but low mortality, and spontaneous recovery within a few days is typical.

### **Etiology:**

The precise etiology of winter dysentery is unclear. In recent years, a bovine coronavirus (BCV) closely related to the virus that causes diarrhea in neonatal calves, has been implicated as the etiologic agent. Evidence for BCV as the cause of winter dysentery includes the following: 1) clinical signs and pathologic findings are consistent with disease induced by BCV, 2) seroconversion to BCV has been demonstrated in affected cattle, 3) the virus is frequently isolated from diarrheic feces of cattle exhibiting clinical signs of winter dysentery, and 4) the disease has been reproduced by briefly exposing BCV seronegative, lactating cows to a calf experimentally infected with feces from cows with winter dysentery. Despite this evidence, it has not been possible to consistently reproduce winter dysentery through oral inoculation of adult cattle with BCV. Concurrent risk factors, such as changes in diet, cold temperatures, and presence of other microorganisms, may be required before BCV will cause clinical disease in adult cattle. Agents previously suggested as causes of winter dysentery include *Campylobacter jejuni*, bovine parvovirus, enteroviruses, infectious bovine rhinotracheitis virus, and bovine viral diarrhea virus.

### **Transmission, Epidemiology, and Pathogenesis:**

BCV is transmitted via the fecal-oral route through ingestion of feed or water contaminated with feces from clinical cases or clinically normal carrier animals. Viral particles present in respiratory secretions of affected animals may further enhance transmission. Transmission of disease is promoted by close confinement. Winter dysentery is highly contagious and easily introduced to barns by visitors, carrier animals, and fomites. Winter dysentery is common in northern climates where animals are housed indoors for extended periods during the winter months. It is seen frequently in the northern USA, Canada, the UK, Europe, Australia, New Zealand, Israel, and Japan. Coronaviruses survive best at low temperatures and at low ultraviolet light intensities, which can lead to a buildup of virus in the environment during the colder months. Adult lactating cows that have recently calved are most severely affected, but the disease can affect younger or older animals and males. Mortality rates associated with winter dysentery are generally low (1-2%), but morbidity in affected herds is high, with 20-50% of the animals in a herd exhibiting clinical signs within a few days and close to 100% of animals in the herd exhibiting signs within a

week. Some degree of immunity to winter dysentery appears to develop because recurrences, if seen in the same herd, are noted at 1- to 5-yr intervals.

Inflammatory mediators that cause hypersecretion in the small intestine and colon are thought to contribute to the voluminous diarrhea seen in cattle with winter dysentery. In addition, destruction of epithelial cells in the colonic crypts results in transudation of extracellular fluid and blood, explaining the hemorrhagic nature of the diarrhea in some cases.

### **Clinical Findings:**

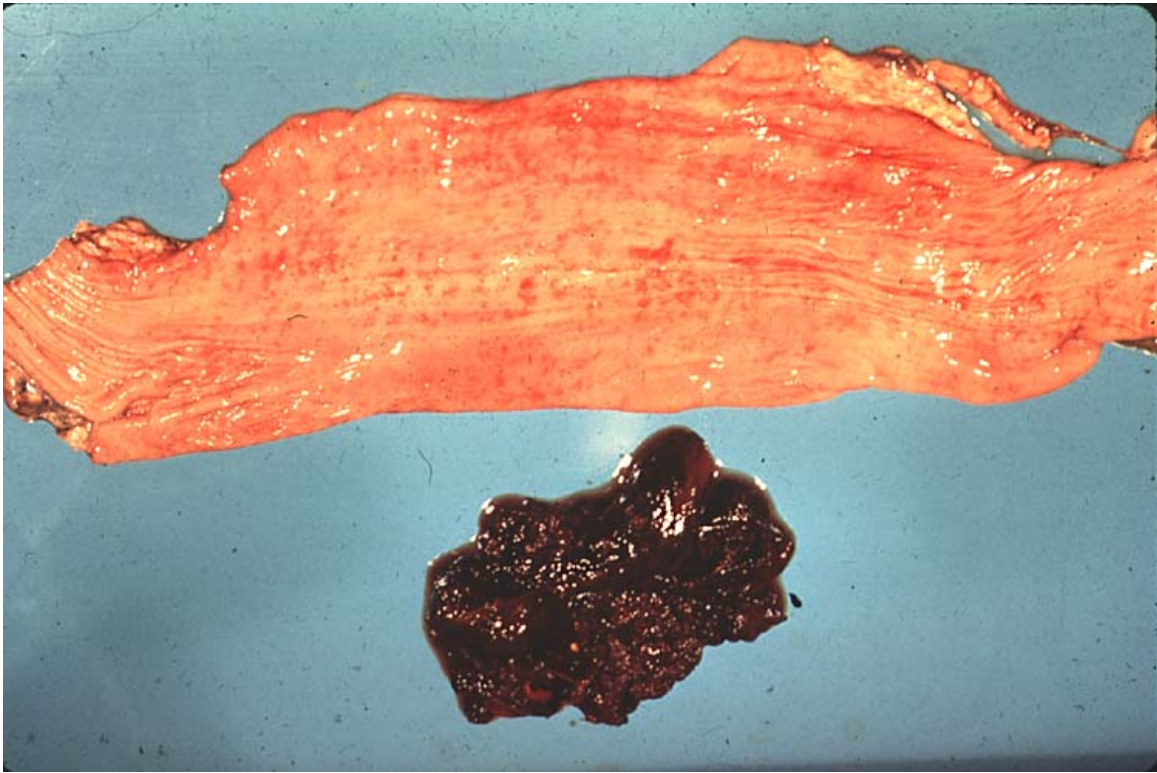
The clinical syndrome is characterized by an acute onset of fluid diarrhea and a profound decrease in milk production (25-95% production loss). Feces are liquid and homogenous with little odor, dark green to black, and rarely contain blood or mucus. A sweet, musty, unpleasant odor is reported in barns with large numbers of affected cattle. Nasolacrimal discharge or cough may accompany or precede the diarrhea. Other signs include mild colic, dehydration, depression, a brief period of anorexia, and some decrease in body condition. Occasionally, animals exhibit more severe signs such as passage of feces with variable amounts of blood, severe dehydration, and weakness. Fatalities are rare. Diarrhea in individual animals has a short course, and feces return to normal in 2-3 days in most animals. Disease in the herd typically subsides in 1-2 wk, but milk production may take weeks to months to return to normal.

### **Lesions:**

The small intestine may be dilated and flaccid. Lesions are primarily seen in the large intestine and consist of cecal and colonic mucosal hyperemia, linear streaks or pinpoint-sized hemorrhages mostly along the colonic mucosal ridges, and blood in the lumen of the large intestine. Histologic findings may include widespread degeneration and necrosis of colonic glandular epithelium.



Acute ulceration of Peyer's Patch. ©Cornell Veterinary Medicine.



Colon, mucosa, and blood clot from cow affected with clinical Winter Dysentery.  
©Cornell Veterinary Medicine.

**Diagnosis:**

If you suspect Winter Dysentery in an animal that has recently died, a necropsy can be performed at the LDDC or Breathitt Veterinary Center. If you suspect Winter Dysentery could be a problem in your live animals, testing should be sent directly to the National Veterinary Services Laboratory (NVSL).

**Testing offered by the NVSL to confirm Winter Dysentery:** (*serum tests: minimum 2ml serum*)

ELISA

IFA (*Bovine Serum ONLY*)

FA (tissue)

Virus Isolation (*tissue or feces*)

Virus Neutralization (*serum ONLY*)

These can be sent directly to NVSL at:

NVSL

1800 Dayton Ave

Ames, IA 50010

Forms for submission and more information:

[http://www.aphis.usda.gov/animal\\_health/lab\\_info\\_services/](http://www.aphis.usda.gov/animal_health/lab_info_services/)

**Treatment and Control:**

Most affected cattle recover spontaneously. Fresh water, palatable feed, and free-choice salt should be available at all times. The use of astringents, protectants, and adsorbents is controversial. IV fluid therapy or blood transfusions may be required in severely affected cattle. There is no vaccine for winter dysentery. Isolation of newly introduced cattle for 2 wk and isolation of any adult cow with diarrhea is advised to decrease the likelihood of disease introduction into a herd. In an outbreak, access to the premises should be restricted, and all persons in contact with affected cattle should ensure that their footwear and clothing are clean before leaving an affected farm.


**For further information on Winter Dysentery:**

<http://www.merckvetmanual.com/mvm/index.jsp?cfile=htm/bc/22104.htm>

<http://www.cvmbs.colostate.edu/ILM/proinfo/cdn/2005/Winter%20Dys%20Jan%2005.pdf>

<http://www.addl.purdue.edu/newsletters/1997/spring/bci.shtml>

**Note- This bulletin is a service provided by the Livestock Disease Diagnostic Center in Lexington, KY and the Breathitt Veterinary Center in Hopkinsville, KY.**



\*\*\*\*\*  
Jackie L. Smith, M.S.  
Section Chief, Epidemiology  
LDDC  
University of Kentucky College of Agriculture  
1490 Bull Lea Road  
Lexington, KY 40512  
859-253-0571 x159  
[jsmit8@uky.edu](mailto:jsmit8@uky.edu)  
\*\*\*\*\*



Dr. Carney Jackson  
DACVP, DACVPM  
Associate Professor  
University of Kentucky  
Livestock Disease Diagnostic Center  
1490 Bull Lea Road  
PO Box 14125  
Lexington, KY 40512-4125  
859-253-0571 Ext 166  
FAX 859-255-1624  
\*\*\*\*\*