

CRYPTOSPORIDIOSIS: CALVES

Pathology description

Cryptosporidiosis is caused by infection with the single-celled parasite (not bacterium) *Cryptosporidium parvum*. It is a protozoan parasite that is transmitted by fecal-oral contamination. These protozoa invade the apical surface (brush border) of the enterocyte in the distal small intestine and proximal colon and form parasitophorous vacuoles where development occurs. Infection results in crypt and submucosal inflammation, necrosis of microvilli, villous atrophy and decreased mucosal enzyme activity. This results in decreased absorptive ability of the intestinal tract, fermentation of nutrients within the lumen and osmotic *diarrhea*.

Cryptosporidiosis is usually seen in calves between one and two weeks of age. It is very rare in animals older than a month old, because by this age most animals will have become immune to infection.

Symptoms

- *Diarrhea* – profuse watery and green, occasionally bloody.
- Colic and pain.
- Depression, loss of appetite and weight loss.
- Many infected calves will not develop *diarrhea*, the reason for this is not known in many cases *cryptosporidia* is seen with other diseases, particularly *rotavirus*. In this case disease is often more severe with more affected calves.



Figure 1: Typical diarrhoea caused by *Cryptosporidium parvum*

Costs of the disease

- Weight loss
- Treatment cost

Vectors

- **Environment**

Initial exposure takes place when the calves are placed on a site that has been contaminated previously and they ingest protozoa.

- **Material**

Contaminated equipment.

- **Animal**

The main source of infection are the calves themselves, which are contaminating their own environment.

- **Feed and drinking water**

Cryptosporidiosis is spread between calves by the consumption of food or drinking water contaminated by faeces containing the infective stage of the oocysts.

- **Working method**

Insufficient cleaning.

- **Transport**

Calves that are transported in contaminated trucks can be easily infected.

→ MAIN VECTOR: animals

Preventive action

To achieve effective control of *cryptosporidium*, good management and hygiene is vital. The oocysts can be killed by freezing and by composting, but they are very resistant to disinfectants. Hot washing of surfaces followed by thorough drying is effective.

Prevention of disease is therefore based on:

- Preventing fecal contamination of feed and water troughs, by raising or covering.
- Increasing the bedding to reduce contamination.
- Clean and disinfect all buildings with products that kill oocysts.
- Affected calves should be moved away from other animals and feces should be removed regularly to decrease exposure of other calves.
- Adequate colostrum intake is important to prevent secondary invaders from making the situation more severe.
- Quarantine for 2 weeks all purchased animals to observe for scouring.

Controlling action

Many cases will recover without treatment. If calves become dehydrated then electrolytes should be given. If disease is severe, medication be added to the preventive action to reduce disease severity and prevent spread to other animals.

Advised Protocols

For every possible vector, a hygiene protocol must be implemented. See these Specific Purpose Protocol:



GENERAL
HYGIENE



PERSONNAL
HYGIENE



CALF
MANAGEMENT

Source: www.coloradodisasterhelp.colostate.edu/prefair/disease/dz/Cryptosporidiosis.html