

## Livestock Health Series

# Caseous Lymphadenitis in Small Ruminants

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### Introduction

Caseous lymphadenitis (CL) is a contagious disease of small ruminants caused by the bacterium *Corynebacterium pseudotuberculosis*. The disease is found throughout the world and is a major concern for sheep and goat producers in the United States as it causes economic loss from wool and hide loss, carcass condemnation and death. CL is characterized by abscesses of subcutaneous lymph nodes (external form) and abscesses of internal lymph nodes or organs (internal form).

### Transmission

Bacteria that cause CL enter through skin wounds or mucous membranes and then localize in the lymph nodes to proliferate. Once in the lymph nodes, the animal's natural immune defenses wall off the quickly-dividing bacteria, thus forming an abscess.

The disease becomes contagious when a subcutaneous abscess from an infected animal ruptures and releases the concentrated bacteria into the environment. The abscesses contain a thick, yellow to white discharge that has a soft, pasty consistency, much like toothpaste, or a crumbly consistency, much like feta cheese.

Animals with the internal form can spread the bacteria through nasal discharge and secretions from coughing. Once in the environment, the bacteria can then be transmitted from animal to animal via contaminated pens, water buckets, shearing clippers and feed bunks.

*Corynebacterium* can also infect people, making the disease zoonotic.

The bacteria can survive for several months in the environment, so biosecurity protocols should be in place when treating and handling animals potentially infected by this organism. Disposable gloves and boot covers should always be worn during interaction with suspect animals and hands, and clothes should always be washed directly after contact.

### Clinical Signs

The most obvious symptom of the disease is swelling corresponding with the abscessed lymph node just under the skin (external form). Sometimes, the bacteria can enter the bloodstream to cause abscesses in internal organs, such as the liver, lungs, kidney or reproductive tract, resulting in a thin and sickly animal with no other obvious clinical signs (internal form). The lymph nodes around the head and neck region are most commonly affected, but any lymph node in the body can become a target for disease (Figure 1). Some animals may have a fever, loss of appetite and lethargy

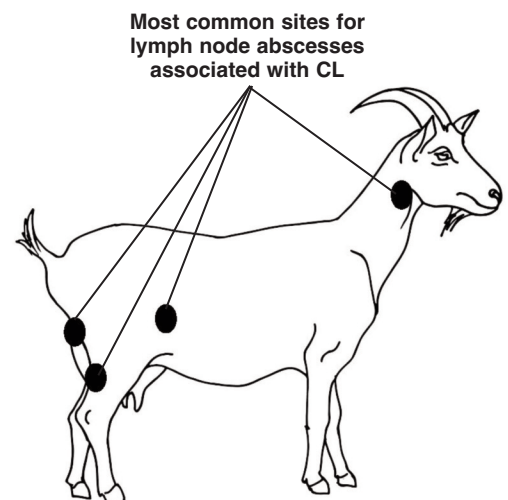


Figure 1

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with the initial infection. Because the internal form of CL does not exhibit obvious clinical signs, thin and generally poorly-performing animals are often suspect for having the disease. Mortality in infected sheep and goats is low, but production losses in weight gain, milk production, reproductive efficiency and carcass quality may be significant.

## Diagnosis

A diagnosis of CL is usually made based on the appearance of enlarged lymph nodes on the animals. Other bacteria such as *Staphylococcus aureus* and *Pasteurella multocida* can cause similar abscesses, so a definitive diagnosis must be made by culturing and identifying *Corynebacterium* isolated from an abscess sample. The disease is difficult to diagnose in animals with the internal form because abscesses are not readily available for sampling. Blood tests exist for determining if the animal has developed antibodies to CL, but if tested too early, there can be a false negative result. Also, if the animal was ever vaccinated for CL, the blood test result can be falsely positive.

## Treatment and Control

Treating CL with pharmaceuticals is difficult because antibiotics do not penetrate walled-off abscesses effectively. Surgical treatment by making an incision over the abscess to allow drainage is preferred; however, this procedure must be done carefully to prevent exposure of the infectious drainage to the environment. Furthermore, the discharge that is obtained from the abscess should be disposed of in such a way as to avoid contamination of the facilities and remaining animal population.

Ideally, the animal should be treated in an area where there is little traffic from humans and animals. After treatment, the affected animal should be isolated until the open surgical wound heals. In a case where the abscess has ruptured, it should be drained immediately and the infected animal moved to an isolation pen to minimize contamination of the environment. In

sheep, abscesses may not be noticed until shearing when the shearer inadvertently clips the wall of an abscess, causing it to ooze. If this occurs, shearing should be stopped and the clippers, blades and general area should be disinfected after moving the animal to an isolated area.

There are *Corynebacterium pseudotuberculosis* vaccines for goats (bacterin) and sheep (bacterin with toxoid). Immunization will not prevent the disease, but numerous studies have shown a significant reduction in the numbers of abscesses in animals vaccinated for CL when experimentally infected with the disease-causing bacteria. However, injection site lesions and abscesses have been reported as a side effect of these vaccines. Therefore, vaccination of animals may be reserved for farms with an identifiable problem of CL on the property.

Meanwhile, animals should be regularly observed for signs of disease and managed with best practices. New animals should be kept from the rest of the flock and observed for any signs of disease for at least three weeks. Any animals identified as being affected by the disease should be culled after appropriate treatment. To develop a sound vaccination schedule and biosecurity plan, consult with your veterinarian.

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