

# Caseous Lymphadenitis (CL) in Goats and Sheep

## Introduction

Caseous Lymphadenitis or CL is a highly contagious bacterial disease that affects sheep and goats. CL is characterized by abscess formations in the skin, internal and external lymph nodes, and internal organs. CL is a worldwide chronic disease in goats and sheep; however, some animals within a herd appear to be very resistant to this disease.

## Diagnosis, Prevention & Treatment

*Corynebacterium pseudotuberculosis* causes CL. Goats and sheep can be infected by direct contact with this microorganism. The CL bacteria can be found in the soil of contaminated pens and pastures on feed and water troughs, and in shelters and other congregation points. The source of contamination is usually an abscess that has ruptured and drained onto various surfaces. Direct contact with a ruptured abscess by herd-mates will also spread the infectious bacteria from animal to animal. Animals can acquire infection orally when ingesting contaminated feed or grass. Upon infection, *C. pseudotuberculosis* will multiply and spread throughout the body via the bloodstream. Subsequently, lymph nodes and internal organs including the lungs, kidney and liver



## CL abscess

become infected and develop abscesses. The spinal cord can also develop CL abscesses. Once infected the animal is considered to be a carrier for life.

## Clinical Signs

The first usual indication of CL infection is the presence of an external abscess visible behind the ears, beneath the jaw or neck, on the shoulder, or in the rear flank region. They may also develop between the hind legs where scrotal sac or udder attaches. Internal abscesses are detectable only through necropsy (examination after the animal

is dead). Unfortunately, it is the internal abscesses that are fatal, whereas external abscesses are the ones generally responsible for disease transmission. Sheep are more prone to internal abscesses and goats are more prone to external abscesses. If an animal is experiencing chronic weight loss, it may be carrying internal CL abscesses on vital organs.

## Diagnosis

Not all abscesses or cases of chronic weight loss in sheep and goats are associated with CL. Diagnosis is based on clinical signs detected by sight



and by physical examination. Abscesses range from firm to soft swelling, and some are well-defined with rounded shapes on the surface of the animal's body. The CL abscess typically contains pasty, thick, yellow-green pus with a foul odor. Internal abscesses cannot be seen, except by X-ray, biopsy, or postmortem examination. Serologic tests are available, but their reliability is questionable.

When you suspect CL, you should confirm the presence of the *C. pseudotuberculosis* microorganisms by submitting a sample of the abscess content to a diagnostic lab for analysis. If the laboratory result is positive, then CL is deemed responsible for the abscess.

If you have an animal that develops an abscess:

- Immediately isolate the animal from the herd.



**Isolate from the herd**

- Wear surgical gloves to drain abscesses.
- Use a disposable scalpel to cut the surface of the abscess and drain it before it ruptures on its own in the field. The abscess is about to rupture when it has lost hair.



**Incision to drain an abscess**

- Completely drain the abscess of its content; a large amount of pus with the consistency of toothpaste may appear. You may wish to collect some of the pus with a new syringe for submission to a diagnostic lab for pathogen isolation and identification.



**Completely drain the abscess**

- Wash the resulting abscess cavity thoroughly with hydrogen peroxide then flush it with iodine.

- Keep the infected animal from the rest of the herd until the abscess is completely healed.
- Disinfect the area where the animals with the abscesses were housed.
- Keep records of abscess cases.
- Incinerate gloves, napkins, and lining material immediately after use.

The abscess is rich in the *C. paratuberculosis* microorganism. To avoid spreading the CL microorganism, place the infected animals on a concrete floor or other surface that will make disinfecting easier. Clean the floor immediately with a potent disinfecting solution, such as bleach. Always wear gloves when draining the abscess.

Other microorganisms, such as *Arcano bacterium (Actinomyces) pyogenes*, entering an animal's skin the same way the CL microorganisms enter can also cause abscesses. Using non-sterile needles can cause infection at injection sites.

### **Preventing CL Through Management**

There is not an effective treatment for CL. Antibiotics are ineffective. However, certain management practices can help to minimize the impact of CL on the herd or flock.



**Wash the abscess cavity**

- Conduct routine, visual examinations of the herd, noting the presence of abscesses. This may require a closer inspection in wool sheep and fiber goat breeds where long course hair or wool can hide abscesses. The same is true of long-eared goats such as Boer and Nubian, where submandibular abscesses can be hidden under the ears.
- Avoid purchasing animals with visible abscesses or abscess scars.
- Examine males before introducing them to the doe herd. A male with erupted abscess can contaminate the females.
- Avoid giving injections in the shoulder region where an injection-site reaction can be confused with a CL abscess.
- Use a clean needle with each animal to prevent the spread of *C. paratuberculosis* from asymptomatic

carriers to non-infected animals. This would be of particular concern with the use of automatic syringes.

- Always disinfect equipment such as ear taggers, tattooing needles, hoof trimmers, or wool shears that might break the skin of animals when used. Shearing equipment is of special concern as a hidden abscess might be ruptured during shearing.
- Cull infected animals from the herd to help reduce the risk of CL infection.
- Consider maintaining a closed herd.

### ***Vaccinating Against CL***

Control of the CL disease by vaccination remains controversial, although toxoid vaccines

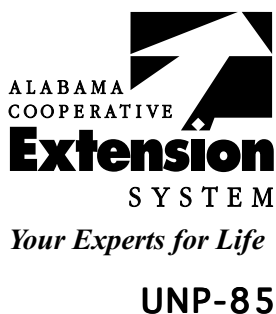
are now commercially available in some countries. A vaccine for sheep is commercially available in the United States. This vaccine is made with killed germs and seems to be effective in decreasing the incidence and severity of the disease in sheep herds. However, the vaccine is not approved for use in goats. Autogenous vaccines (vaccines made from bacteria strains isolated from a specific herd) are another source of available immunization in sheep and in goats. However, a reputable certified laboratory must produce the vaccine. Before using an autogenous vaccine, test it in several animals for adverse side effects. Goats seem to be more sensitive to the side effects of these types of vaccines.



**Internal CL abscess in goat liver and lung**

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