

Michael D. Piontkowski, DVM
Senior Staff Veterinarian
Technical Service

Caseous Lymphadenitis in Sheep

INTRODUCTION

Caseous Lymphadenitis (CLA), a disease caused by the bacterium *Corynebacterium pseudotuberculosis*, is a widespread chronic infection causing significant financial losses for the sheep industry. The bacteria can enter a flock either from the environment or more frequently from the introduction of infected sheep. Once present in a herd, this infection can be presented in an external form involving superficial lymph nodes, an internal form involving internal lymph nodes or organs (especially the lungs), or a combination of both.

Losses caused by CLA are two-fold. The first loss occurs when lambs are shipped to market with lesions resulting in carcass condemnation. In a recent audit by the sheep industry, CLA accounted for over 23% of the total condemnation at slaughter. The second loss is "unthriftiness in ewes", sometimes referred to as "thin ewe syndrome". Although not typically associated with death, CLA in this situation leads to decreased milk production and quality, decreased wool production, as well as eventually leading to condemnation at slaughter.

METHODS OF INFECTION

Wounds to the skin, either from shearing or the environment, will allow bacteria to enter the body and establish in external and internal lymph nodes or organs. Recent research infers the bacteria may enter the body in an aerosol form, thus allowing the bacteria to localize in lung parenchymal tissue. Once established in the body, the infection results in the formation of an abscess containing a cheesy greenish-yellow to off-white material surrounded by a thick capsule. This thick capsule prevents the body's own defense system from effectively eliminating the disease and prevents effective penetration by antibiotics. This makes any method of treatment difficult and usually unproductive. These abscesses eventually rupture, allowing the spread of the disease to other parts of the body, as well as seeding the environment and allowing the bacteria to spread to susceptible sheep.

CONTROL AND PREVENTION

The current recommendation for sheep with CLA lesions would be cull those sheep to lessen the exposure of susceptible sheep. Laboratory testing is available to diagnose CLA-positive sheep with internal lesions to assist in eliminating infected sheep from a flock.

Colorado Serum Company has developed two effective vaccines to help protect susceptible sheep from CLA. With culling sheep with CLA and instituting either of Colorado Serum Company's CLA vaccines, CASE-BAC or CASEOUS D-T, into a flock-health program, the incidence of CLA can be significantly reduced. In a study by Colorado Serum Company, sheep were challenged at 8 months post-vaccination. Ninety percent of vaccinated sheep were protected from the internal form of CLA and 58% were protected against the external form of CLA. For comparison, non-vaccinated control sheep showed 100% infection of both forms of CLA. In animals having CLA lesions after challenge, the vaccinated group averaged about one lesion per animal compared with an average of 36 lesions per sheep in the non-vaccinated control group, demonstrating a significant reduction in disease severity ($P < 0.001$).

Although the vaccine does not help sheep already infected with CLA abscesses, the protection offered to susceptible sheep from exposure to a contaminated environment and undetected infected sheep can amount to a considerable financial gain to the sheep industry.

By incorporating CASE-BAC into an existing health program or using CASEOUS D-T to form the basis of a flock health program, Colorado Serum Company is helping the sheep industry reduce the incidence of this disease.

