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Pigeon Fever and other ways *C. pseudotuberculosis* can affect livestock

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*Corynebacterium pseudotuberculosis* can infect multiple species of livestock, in particular horses (pigeon fever), sheep and goats (caseous lymphadenitis) and cattle. There are commonalities, but also some important differences in how the infection manifests itself in the different species.

The causative agent of pigeon fever is very hardy in the environment and draining abscesses can serve as a source of environmental contamination. It is therefore important to collect as much as possible of the drainage before it ends up on fences, tack, or other surfaces where it can serve as a source of infection for more horses. When lancing an abscess, it should be done on either a concrete surface or a tarp that can be cleaned and disinfected or thrown away afterwards. Isolation of horses with open abscesses limits the spread as well. UC Davis has a useful summary about Pigeon Fever in horses available [online](#) that also goes into the different presentations of the infection in horses: external abscesses, internal abscesses, and ulcerative lymphangitis, how to diagnose the disease, how to treat it, how to prevent it, and what the prognoses are for the different forms of infection.



Figure 1: An external abscess in the pectoral region of a horse infected with *Corynebacterium pseudotuberculosis*.

Photo courtesy of the UC Davis Center for Equine Health.

The same bacteria, but a different biovar, can cause caseous lymphadenitis in sheep and goats, i.e. an infection in a horse cannot spread to small ruminants or vice versa. Similar to horses, there is an external form with abscesses often affecting the lymph nodes on the head and neck, which seems more common in goats, as well as a visceral form that is characterized by internal abscess formation and which is more common in sheep. Internal abscesses in small ruminants often lead to weight loss or a chronic cough if the lungs are affected. Once infected, sheep and goats stay carriers for life, i.e. there is no cure. Culling is often recommended to prevent further spread. If culling is not an option, abscesses should still be lanced before they rupture, so most of the pus can be removed and the lesion flushed with a disinfectant to avoid contamination of the environment. There is a vaccine for sheep sold by Colorado Serum; however, vaccinated sheep will test positive on blood tests for CL. The vaccine is not for use in goats. Whether or not to use this vaccine needs to be carefully considered and should be discussed with your veterinarian.

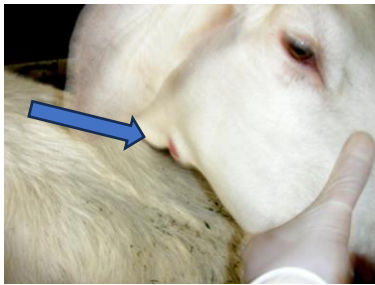


Figure 2: Caseous lymphadenitis in a goat, photo: Maier

Cattle, on the other hand, are susceptible to both biotypes, although infection in cattle is sporadic and looks different than in horses and small ruminants. Cattle develop granulomatous lesions as seen in the image below that have been reported to occur as herd outbreaks in dairy herds. These lesions, although presenting quite dramatic, typically do not cause major illness and heal spontaneously within a few weeks. I am not aware of outbreaks in beef cattle, and it is possible that the more intensive confinement on dairies offers more opportunities for cattle to become exposed and to suffer from minor scratches that allow entry of the bacteria into the body.



Figure 3: Granulomatous lesion from *Corynebacterium pseudotuberculosis* infection in dairy cow, from Yeruham et al. *Corynebacterium pseudotuberculosis* infection in Israeli dairy cattle. *Epidemiol. Infect.* (2003), 131, 947-955.

Major take-home points on *C. pseudotuberculosis*:

- Infections can cause internal and external abscesses.
- Depending on the species and whether internal or external, the prognosis for recovery varies.
- Once a case has been detected, work with your veterinarian to develop a course of action. One of the main goals should be to minimize exposure of other animals on the farm to infective material. Isolation of affected animals and minimizing drainage of pus onto surfaces that other animals come into contact with is important. Disinfect any potential fomites such as tack, water troughs, feed bunks, etc. where the animal may have acquired the infection.
- Biting insects have been associated with infections, so good fly control may help prevent cases.
- Eliminating any sharp edges, nails, and other hardware where animals may get scratched is also recommended.
- There is a small chance that an infection can spread to humans so wear gloves when handling infected animals and practice good hand hygiene.