

Pigeon Fever

By

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As we begin to approach the fall and winter months, we are seeing more and more cases of “pigeon fever.” Many horse owners in California are well aware when their horse becomes infected with this disease if the animal develops a typical pectoral abscess. However, “pigeon fever” doesn’t always make itself quite so obvious. There are actually three different forms of this disease that may develop in horses, and each is treated differently by veterinarians. This article will provide some general information about “pigeon fever”, how veterinarians treat the disease, and what horse owners can do to try to prevent this disease from occurring in their horse(s).

“Pigeon fever”, also called “dryland distemper,” is caused by the bacterium,



Corynebacterium pseudotuberculosis. This organism is present in the environment, and it survives very well in our soil. The bacteria is believed to be spread to horses by biting flies. Horses become infected when flies deposit the bacteria on open sores or abrasions on their skin. It can take anywhere from weeks to months for a horse to develop clinical disease after being exposed to this bacteria.

Because flies are believed to be responsible for the spread of this disease, we seem to see the majority of our cases during the months of September through November, just after the driest part of the year when the fly burden is the heaviest. The largest numbers of actual reported equine cases in California occur during the fall and early winter months after years of heavy rainfall, when breeding conditions are optimal for insects. Although the prevalence of this disease is seasonal, we do occasionally see cases during times of the year that we don’t always expect to!

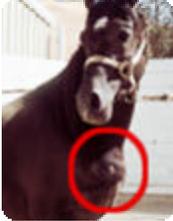
Once infected with *Corynebacterium pseudotuberculosis*, there are three different forms of disease that may develop: 1). External abscesses; 2). Internal abscesses; and 3). Ulcerative lymphangitis. In a recent study performed in California, external abscesses were diagnosed in 91% of the cases, internal abscesses in 8%, and ulcerative lymphangitis in 1% of the cases. The development of external abscesses is by far the most common form of the disease we see here in the Placer and Nevada counties, however we do see cases of internal abscesses and ulcerative lymphangitis here as well.

External abscesses, particularly in the pectoral and ventral abdominal regions, are the most common form of *Corynebacterium pseudotuberculosis* infection seen in horses living in the Western U.S. This form of infection is often referred to as “pigeon fever” due to the location of the large pectoral abscesses that can form, resembling the breast of a pigeon. It has also been termed “dryland distemper” due to its geographic distribution in the most arid areas. In addition to the chest and ventral abdomen, external abscesses also often develop on the sheath, mammary tissue, axilla (armpit), inguinal region (groin), limbs, and head. Abscesses have less commonly been seen in other locations on the body, including in joints, on the rectum, thorax, neck, and the umbilicus. Edema often develops in the region of the abscesses as well, and many horses will develop a fever. When these abscesses mature, they become very firm and painful. Some horses may develop severe lameness, especially those with abscesses in the axilla, inguinal area, and limbs. Although the maturation process can often be slow, once the abscess ruptures, the horse



usually becomes much more comfortable.

The average age of those horses that develop external abscesses is 5 years, although they have been seen in horses ranging from 3 months to 28 years. Young horses seem to be predisposed, however it is not commonly seen in foals under 6 months of age. For this reason, it is believed that foals may be protected for several months by colostral antibodies from the mare. It is also believed that the majority of horses who become infected with this bacterium and recover, do not develop the disease again, implying that they have a long-lasting immunity. It has been reported, however, that 8.6% of infections will persist for one or more years, or recur as external or internal abscesses.



As was stated previously, about 8% of the *Corynebacterium pseudotuberculosis* cases in California develop internal abscesses. The most common sites for these abscesses to develop are in the liver, spleen, kidneys, and lungs. Internal abscesses have less commonly been seen in the uterus, diaphragm, and in various other locations within the thorax and abdomen. About half of the cases with internal abscesses we see here currently have, or have recently had, an external abscess. Others have no history of having an external abscess at all, but have recently been exposed to another horse that has.

Clinical signs in horses with internal abscesses include fever, weight loss, depression, colic, ventral or limb edema, anorexia, respiratory illness, and abortion. These signs can vary depending on the organ(s) that are affected. It is not exactly clear how horses develop the internal abscess form of this disease, but it is believed that the bacteria are spread by the blood or lymphatics from more superficial sites in the body.

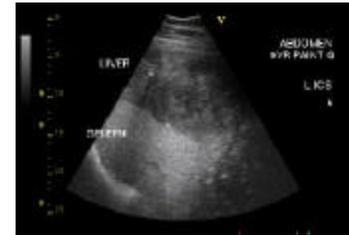
The third form of *Corynebacterium pseudotuberculosis* infection in horses is ulcerative lymphangitis. This form is only seen in about 1% of the cases in California, however it is much more common in other parts of the U.S. Ulcerative lymphangitis appears as a severe cellulitis in one or more limbs with draining ulcerative lesions. These horses often develop a non-weight-bearing lameness, fever, lethargy, anorexia, and weight loss. There are many other common causes of cellulitis and ulcerative lesions in horses, so it is important for veterinarians to rule out these other causes.



Diagnosis

Most *Corynebacterium pseudotuberculosis* infections are presumptively diagnosed based on clinical signs, history, time of year, and local prevalence, especially in horses that develop the external abscess form of the disease. Because there are other bacteria known to cause similar abscesses, such as *Streptococcus equi* (the bacteria that causes Strangles in horses), we will often culture the drainage from an abscess in order to get a definitive diagnosis. In horses with deep or immature abscesses, an ultrasound examination of the suspicious area may be performed in order to determine whether an abscess is actually present. A sample from the abscess can then be taken for culture using ultrasound guidance.

For horses suspicious of having an internal abscess, we often draw a blood sample for blood cell and chemistry analysis and submit another sample for a *Corynebacterium pseudotuberculosis* antibody titre. Horses with internal abscesses typically have inflammatory bloodwork, with elevated white blood cells and fibrinogen. Their blood chemistry also commonly shows an elevation in globulins in addition to other various serum chemistry abnormalities. Horses with only the external form of the disease can have similar bloodwork results, so this is not a definitive test for diagnosing an internal abscess. The antibody titre can be very helpful in diagnosing horses with internal abscesses caused by *Corynebacterium*



pseudotuberculosis. With an internal abscess, horses will usually have titres greater than 1:512, while horses with only external “pigeon fever” abscesses will typically have very low antibody titres. However, a high titre is not always diagnostic for the presence of an internal abscess, as horses with only the external abscess form of the disease can have high titres as well. Further diagnostics, including abdominal and thoracic ultrasound are necessary to diagnose a horse with the internal form of the disease.

Horses with ulcerative lymphangitis will typically have bloodwork and antibody titres analyzed, as was described for horses suspicious of having an internal abscess. In addition, a skin biopsy from an ulcerative lesion may be performed and sent out to a lab for analysis. *Corynebacterium pseudotuberculosis* is often cultured from these ulcerative lesions.

Treatment

Horses with external abscesses are usually treated supportively. We often have owners apply hot compresses or poulticing agents, such as Icthamol or Numotizine, to encourage the abscess to mature. Once an abscess has matured, it usually becomes very hard and painful, and it often has a softer area where it will eventually break open. Once an abscess reaches this point, we usually tell owners to call a veterinarian out to lance open the abscess, as this relieves the pain almost instantly. If the abscess isn't causing the horse too much discomfort, owners may also elect to allow the abscess to break open on its own. If the abscess is deep within the muscle or in the axillary region and is causing considerable pain, we often lance it using ultrasound guidance.



Once the abscess has opened and drained, we recommend lavaging the wound daily with dilute betadine solution until the area has healed. It is also very important to control the flies around the wound at this time. This can be done by applying a fly repellent ointment, such as SWAT, around the area, but not directly on the wound. In addition to the above therapies, we will often give horses antiinflammatories, such as Banamine or Phenylbutazone, to control the inflammation and associated pain while waiting for an abscess to mature. Antibiotics are not generally given to horses with an external abscess unless the patient is severely infected and has numerous abscesses on the body. Once the abscess has opened and drained, most patients will recover within 10-14 days. The prognosis for recovery in horses with an external abscess is good.

In contrast to the treatment for external abscesses, the treatment for horses with internal abscesses and ulcerative lymphangitis requires long-term antibiotic therapy. There are a variety of different antibiotics that *Corynebacterium pseudotuberculosis* is susceptible to, but a common combination of antibiotics we use are Penicillin G and Rifampin. Antiinflammatories are also commonly used during the first couple of weeks of treatment. Horses that are treated early will usually recover within 42 days. The prognosis for



horses with internal abscesses or ulcerative lymphangitis is guarded, however, if left untreated, there is a 100% fatality rate.

Prevention and Control

Unfortunately, there is little known about the prevention and control of infection by *Corynebacterium pseudotuberculosis*. The best way to prevent infection is by having good fly control. Isolating those with draining abscesses may also help prevent spread to other horses. It is also important to collect any abscess drainage and dispose of it in a place well away from any other horses. There currently is no vaccine available.

“Pigeon fever” has been known to cause abortion in pregnant mares, especially in those with internal abscesses or ulcerative lymphangitis. If a pregnant mare develops any form of infection by *Corynebacterium pseudotuberculosis*, careful monitoring is necessary. It is also important to have frequent ultrasound examinations to monitor the viability of the fetus throughout the rest of the pregnancy. Keeping these mares in a stress-free environment is very important as well.

Corynebacterium pseudotuberculosis can also infect various livestock, including sheep, goats, and cattle.