M. hyorhinis: Emerging cause of wean-to-finish lameness?

There are several causes of lameness in growing-finishing pigs.

New test makes M. hyorhinis diagnosis easier.

M. hyorhinis may be susceptible to macrolide antibiotics.

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AS the costs associated with finishing pigs have steadily increased, swine producers are focused more than ever on marketing the highest percentage of full-value pigs possible.

Respiratory and enteric diseases are commonly understood to cause significant losses throughout the finishing period, but it is often overlooked that pigs that succumb to lameness during this time will frequently have reduced daily feed intake and subsequent daily gains, they will weigh less compared to penmates at marketing and have a higher likelihood of being sent to a cull market at a reduced price.

There are several potential causes of lameness in growing and finishing pigs, including physical trauma, poor environmental conditions, nutritional deficiencies, developmental or structural abnormalities and infection.

Infectious lameness can be caused by several bacterial pathogens, including: Streptococcus suis, Haemophilus parasuis, Actinobacillus suis and Erysipelothrix rhusiopathiae (erysipelas). According to data from the University of Minnesota Veterinary Diagnostic Laboratory, Haemophilus parasuis is the foremost diagnosed cause of lameness among submitted cases.

Additionally, in order of descending prevalence, Mycoplasma hyorhinis, S. suis and Mycoplasma hyosynoviae are the other leading causes of lameness in growing pigs. Of these bacteria, M. hyorhinis is becoming a more frequent diagnosis among lameness cases and is a bacterial agent with which many swine producers are not familiar.

So, what is M. hyorhinis? In many pig populations, it is a normal bacterial inhabitant of the nose and throat. Unlike Mycoplasma hypopneumoniae, which the industry recognizes as a leading cause of respiratory disease in growing pigs, M. hyorhinis is able to cause systemic infection, often affecting the lining of the lungs and abdominal cavity, the surface of the heart and the joints.

Typically, we have recognized lameness caused by M. hyorhinis that occurs in finishing pigs ranging from 12 to 15 weeks of age, but pigs can show signs of arthritis and systemic infection as early as three weeks of age.

Often, the first signs described are an onset of single or multiple leg lameness within a group of pigs. Affected pigs will be slow to rise, and the process of standing tends to look forced and painful. Once up, an affected pig has a gait that looks stiff and choppy, and shifting lameness from one leg to the other is common while standing. Joints will frequently look swollen in appearance and will feel knobby.
In many situations, this occurs in groups that have not had any previous indications of lameness throughout the growing period, suggesting that this can be a primary cause of lameness in these groups.

One reason for an increased diagnosis of lameness caused by *M. hyorhinis* is due, in part, to a new polymerase chain reaction test developed at the University of Minnesota Veterinary Diagnostic Laboratory. With this test, it is not necessary to grow *M. hyorhinis* to detect it. This has made it easier to confirm the bacteria among submitted samples; therefore, a more frequent diagnosis of *M. hyorhinis* in lameness cases has occurred.

It has been our experience at the Swine Vet Center that the antibiotics typically used for lameness caused by *S. suis*, *H. parasuis*, *A. suis* and *E. rhusiopathiae* have not been greatly effective against *M. hyorhinis*.

Because the bacteria can be difficult to culture, treatment decisions have largely been based on *M. hyorhinis* sensitivity studies that indicate an increased susceptibility to macrolide antibiotics, including lincomycin and tylosin (Kobayashi et al., 1996). Additionally, an increased susceptibility to tetracycline antibiotics has been found.

As with any case of lameness, the greatest success with treatment occurs when it is carried out soon after recognition of clinical signs. The longer the decision to treat is drawn out, the poorer the response has been, resulting in a greater number of lame pigs at the end of the finishing period.

Currently, vaccines are not available for the prevention of *M. hyorhinis* infection, and cross-protection from *M. hyopneumoniae* vaccines has not been demonstrated. Because of this, alternative prevention strategies have been considered. One approach includes the implementation of a feed-grade antibiotic program using an antimicrobial that has been shown to have activity against *M. hyorhinis* in a given system or pig flow prior to the anticipated onset of finishing lameness.

Additionally, a critical evaluation of potential stressors in the barn environment, including stocking density, temperature fluctuations, humidity and feed and water availability, should also be made. Concurrent disease processes -- especially those involving viral infections like swine influenza virus, porcine reproductive and respiratory syndrome virus and porcine circovirus, which all cause depressed immune function -- will lead to an increased susceptibility of pigs to opportunistic bacteria.

Diagnosing the involvement of *M. hyorhinis* in a case of lameness in a group of pigs is relatively straightforward. The desired samples include joint swabs, joint fluid from a joint tap (which may be gathered without euthanizing the pig) or portions of the leg, including an affected joint that is left intact. Samples from multiple animals increase the probability of an accurate diagnosis. If desired, an entire set of samples can be collected and submitted for a complete diagnostic workup; this would be helpful to diagnose any other diseases that might be causing production losses in the herd.

The best samples are those taken from affected animals early in the course of the disease that have not received recent antibiotic treatment. Samples must be kept cool in a refrigerator or packed in ice until shipment. Make sure ice is used for shipping so that samples remain cool until arrival at the diagnostic laboratory.

It is difficult to say whether *M. hyorhinis* is truly an emerging cause of wean-to-finish lameness or is just now being diagnosed more frequently. Cases of finishing lameness have increased in our practice area, and many of these have had a corresponding diagnosis of *M. hyorhinis*.

Treatment strategies, when implemented soon after recognition of clinical signs, have been reasonably successful, but we are still working toward prevention so that incidents of lameness don’t affect a producer’s bottom line.

**Sources**

University of Minnesota, Veterinary Diagnostic Laboratory Database.