

Ask A Vet: Polio - It's Different in Lambs

Sunday, February 23, 2014

Dear Dr. Weldy's,

It is that time of year that we are looking at lambs for our 4-H project and someone mentioned they had a lamb they treated for polio. I never heard of such a thing. Is that contagious? Can my kids get that?

-Concerned

Dear Concerned,

The disease you are referring to is polioencephalomalacia (PEM) or polio. It is not a contagious disease and is not transmitted to humans. It is sometimes called cerebrocortical necrosis and as the name implies it causes problems of the central nervous system. In this condition, the brain can swell and become so inflamed that it can cause part of the brain to die. Generally diagnosis is done at the time of necropsy, however, clinical signs and history will lend itself to a diagnosis as well.

The reason we worry about something like PEM is because we see this in feedlot lambs around five to six months of age. However, I have seen this in younger animals most consistently when changing from milk to high grain diets as we try to push energy in the ration for growth. Diets that contain plants that are high in thiaminases and sulfur are a big cause of this condition. The thiaminase is simply an enzyme that breaks down thiamin which is a water soluble sulfa containing vitamin known as vitamin B1. Vitamin B1 is a vitamin that is normally produced in the ruminant animal by the microbes and is important in energy metabolism so deficiencies are very rare. However, if these animals would ingest feeds containing those enzymes that break down thiamin or high grain diets that help the growth of some thiaminase-producing bacteria through quick feed changes in the rumen, these animals will have a thiamin deficiency and show clinical signs of polio. *Clostridium* and *Bacillus* are bacteria most associated with producing those enzymes. The brain and heart are key organs that require lots of thiamin to function.

Clinical signs of PEM can occur quite suddenly. Animals may be seen off by themselves, weak and may appear to be blind. Their necks may be found arched back over their bodies and will appear to be staring upwards. We call them "star gazers" or showing opisthotonus. They will appear to be disoriented and generally will not eat or drink well. They can have normal temperatures and respirations but decreased heart rates. They may simply be found down in their pen with the head thrown back and paddling as with seizures. Some may show head pressing and without treatment, may die as early as two days.

As devastating as the condition sounds, they will respond quite remarkably if treated quickly and in early onset. Generally, treatment consists of thiamin in the vein, muscle or under the skin and steroids to reduce brain swelling. One should test to eliminate sources of high sulfur content in water or thiaminases in feed. Preventing PEM is best done by introducing grain diets gradually to help avoid over production of those bacteria that produce the enzymes that break down thiamin.

-Dr. Wanda Schmeltz