



Recognizing EPM in Horses

Indiana State Board of Animal Health • Tech Bulletin EQ-34.99

Equine Protozoal Myeloencephalitis, or EPM, is a central nervous systems disease of equine. While relatively few horses actually develop the disease, research suggests approximately one-half of all horses in the Midwest have been infected by and/or exposed to the parasite that causes EPM.

EPM is caused by a parasite, *Sarcocystis neurona*, spread in the feces of opossums. Hay, feed and water contaminated by parasite-infested waste are the most likely sources of infection. When eaten, the organism's eggs, called sporocysts, migrate to the central nervous system (CNS) to multiply. Parasites can remain in the horse's system for years without causing disease.

Developing Infection

Not every horse exposed to *S. neurona* will develop EPM. Three factors determine if infection leads to disease:

1. Number of sporocysts ingested. The more parasitic eggs ingested, the more likely symptoms will develop.

2. General immune system health. Immuno-compromised animals are more likely to develop EPM. Certain drugs (e.g., dexamethasone, prednisone), foaling/dystocia, pain, surgery, or general anesthesia can hinder a horse's ability to fight infection.

3. Environmental stress. Long trips,

management changes, new ownership, excessive workloads, or inclement weather can cause stress.

Symptoms of EPM

Symptoms vary, depending on where the organism localizes in the nervous system. Almost always asymmetric (not the same on both sides of the animal), symptoms result from nerve inflammation, swelling and cell death. Owners frequently notice obscure lameness, stumbling and incoordination. If the brain stem is involved, usually a head tilt is present.

Clinical signs may include:

- Ataxia (incoordination) and weakness: Generally centered in the rear limbs, symptoms worsen when the head is elevated, or the horse moves up or down slopes. The animal may stand splay-footed or lean against stall wall for balance;

- Spastic or stiff walking;

- Muscle atrophy or loss of condition: Most common in the hind limb region; can involve face, neck or front limbs;

- Facial nerve paralysis, head tilt, difficulty chewing or swallowing, snoring, roaring, drooped eyelid or lip, abnormal eye movements;

- Back soreness from asymmetric use of hind limbs;

- Attitude change;

- Circling;

- Acute recumbency: May suddenly lie down or fall asleep;

- Seizures;

- Collapse, death.

THE FACTS

- 50% of all horses in Midwest have been exposed to EPM-causing parasite
- 60% of infected horses respond to antibiotic treatment

Since clinical signs can mimic other diseases or neurological abnormalities, a veterinarian should consider the disease when diagnosing EPM-like symptoms in horses.

Diagnosis and Treatment

The veterinarian should conduct a thorough physical examination and a history-taking of the horse's general health. That process should rule-out other possible causes, to reach a tentative diagnosis.

Presently no test method is 100 percent accurate in a living horse. Blood tests only indicate exposure to the parasite, not infection.

Also known as the Western blot test, analysis of the cerebrospinal fluid (CSF) for antibodies is the best option for diagnosis. Fluid can be collected either of two sites along the spine. Collection near the hip area is preferred, as the horse can remain standing. Samples taken near the head require general anesthesia, which is stressful and can actually worsen EPM.

Another means of diagnosis involves giving antibiotics to a symptomatic animal. Nearly 60 percent of EPM-positive horses respond to treatment within the first month. A lack of response within two weeks indicates additional testing is necessary. The expense of the antibiotic response treatment makes CSF methods appealing.

Early detection and treatment is important in combating EPM. The most common treatment is a

combination of oral antibiotics to inhibit parasite replication. In acute cases, antiinflammatory therapy may be warranted to control swelling and inflammation in the central nervous tissue. Vitamin E, folic acid and thiamine supplements may prove helpful. Most treatments are administered for at least 12 weeks. Long-term antibiotic therapy, until a negative CSF test, is the only known successful treatment.

Approximately 28 percent of EPM-infected horses relapse after treatment has stopped—often due to premature withdrawal or administration irregularities. Horses can be re-infected repeatedly by the parasite.

Prevention and Control

While EPM is nearly impossible to prevent, controlling bird and opossum populations can help:

- Keep opossums out of barns and away from feed and bedding. Cover grain tightly.
- Feed horses with processed grain steam-crimped and pelleted to kill parasites. (NOTE: Research has found that even isolated horses fed commercial mixes can blood test positive for EPM antibodies.)
- Install mesh wire fencing with a "hot wire" around the outside to deter opossums (they climb instead of dig).
- Dispose of dead animals, including birds, small rodents and opossums, to prevent the spread of parasitic eggs.
- Limit bird populations in the barn.

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