Neurological Disorders in Horses

How to recognize the signs of a neurological problem early to speed diagnosis and treatment.

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When a horse begins to show signs of unsteadiness on his feet or other odd postures or behaviors, it is best to call your vet right away. A horse with a neurologic problem can be a serious danger to surrounding people, himself and to other horses. There are some instances where a horse with lameness may appear neurologic, and other cases where a neurologic problem looks like a lameness issue. Your vet will try to determine the source of the problem with a thorough exam. Your vet will perform a thorough exam to determine the nature and extent of a suspected neurological problem.

Signs of a Problem

Any irregular limb movement or foot placement should be cause for concern, particularly erratic voluntary movement. Your horse might demonstrate some mild but unusual gait changes, such as dragging a toe, or inconsistent lameness with or without a head bob. Or, he might display something more obvious such as staggering and incoordination (ataxia) and/or muscular weakness (paresis).

Ataxia is quite worrisome as the horse may stumble or lose his balance, and he might actually fall down.

Abnormal posture—the way the horse stands or leans and the way he holds his tail and/or neck—is another sign of a neurologic issue. Cranial nerves may be affected so that there is difficulty chewing, swallowing and seeing, or you may notice a droop in his lip or eyelid.

Neurologic cases can also show a changed disposition or altered reaction to stimuli; a horse may be mentally sluggish, or some individuals may be hyper-reactive to sound.

Neurologic Exam

A thorough physical examination by your veterinarian is key to determining the horse’s problem. Limb placement tests a horse’s understanding of where his legs are in space. This is done by placing one leg in front of the opposite leg and watching if and how long it takes for the horse to replace it to a normal position. (However, some normal horses will stand for a long time with their legs crossed because they are cooperative, not due to a neurological problem.)

Pulling on a horse’s tail or pulling on his halter is a method to assess a horse’s muscular strength. You should not be able to pull a horse off his feet with either of these tests. Pushing hard against the horse’s torso also should not cause him to move or lose balance.

Another test your vet may perform involves holding up a front leg and asking the horse to move forward as he hops on the opposite leg; this also tests strength (or weakness) in the legs as well as coordination.

Walking a horse up and down an incline is another checkpoint for both stability and awareness of leg placement.

The cranial nerves can also be affected by neurologic conditions. These control the ability to take hold of food, swallow, hear, see, smell, taste, salivate and touch, as well as control specific muscles of the eyes, tongue and facial region. Your veterinarian will assess these during the exam.

Other Diagnostics

Other tests help confirm your vet’s diagnosis. Radiographs, MRI and/or CAT scan evaluations examine bone structures for trauma, locate masses or tumors, and check the neck for compression on the spinal cord. Analysis of cerebral spinal fluid is useful for identifying parasitic invasion, viral or bacterial infection. Blood can be tested for antibodies related to specific infections. There are many possible neurologic conditions; here are some of the more common ones.

Wobbler Syndrome

Cervical vertebral malformation or instability, more commonly known as wobbler syndrome, describes incoordination caused by the narrowing of the spinal canal that impinges on and compresses the spinal cord in the neck region.

It is thought that a combination of factors leads to wobbler syndrome: rapid growth rates in young horses, dietary imbalances of minerals, high energy levels, excess activity, and genetic predisposition. A younger horse identified with
narrowing of the spinal canal may be a candidate for surgical correction.

An older horse may also develop wobbler syndrome due to osteoarthritis and/or age-related degenerative changes, particularly if he is predisposed due to a relatively narrow spinal canal. Mosquito-Borne Viruses

The main viral offenders to the neurologic system in the U.S. are western encephalomyelitis (WEE), eastern encephalomyelitis (EEE) and West Nile virus.

The good news is that all three of these mosquito-borne viruses are preventable through safe and effective annual vaccination prior to insect season. In more southern climates, it may be necessary to immunize twice a year. Mosquito-control strategies are also important. However, a horse infected with any of these viruses is not contagious to other horses or humans.

Rabies

Rabies is particularly scary because it is fatal to the animal and is highly infectious to other horses and humans.

A rabies-infected bat, skunk, fox, or raccoon may bite a horse without an owner being aware that this has occurred. A rabid horse typically doesn't foam at the mouth or become aggressive. Instead, the horse may appear as if he is slightly off or just doesn't feel well. People caring for the horse may not recognize a possible rabies case until obvious behavioral changes and neurologic signs become evident. By then, many people may have been exposed.

The best cure in this case is prevention. Every horse should be immunized annually against rabies. There is no excuse not to; the vaccine is safe, effective and inexpensive. Vaccination against rabies is inexpensive and prevents a fast-spreading disease that is fatal to horses and contagious to humans.

Equine Herpesvirus (EHV-1)

Also called rhinopneumonitis, one strain of equine herpes virus (EHV-1) that more typically causes respiratory infections is also known for its dangerous attack on the blood vessels within the nervous system. Incoordination, poor bladder control, weakness, and recumbency are associated with this disease.

To date, there is no available vaccine against the neurologic form, and it is highly contagious between horses. The best prevention is to implement good biosecurity procedures on your farm; isolate newcomers for several weeks, for example. Also, when participating in events off the farm, don’t permit your horses to comingle with others or to eat or drink from communal sources of food or water.

Equine Protozoal Myeloencephalitis (EPM)

EPM is caused by a protozoan parasite, Sarcocystis neurona, that invades the central nervous system. Clinical signs vary, but usually symptoms are associated with the spinal cord: incoordination, stumbling, weakness. Muscle wasting along the topline and haunches is also common.

Opossums are the most common means of transmission when they contaminate horse feed and/or water with their feces. Blood samples may yield a positive result, but all that tells you is that the horse has been exposed, not that he is necessarily infected. Diagnosis is based on clinical signs and testing of a cerebral spinal fluid tap.

Treatment relies on a course of drugs for three to four months. Sixty to 70 percent of treated horses are able to return to athletic function.

Lyme Disease

A tick-borne disease, Lyme disease (caused by Borrelia burgdorferi bacteria) typically causes orthopedic issues related to joint pain and lameness, as well as fever and weight loss, but is also known for various neurologic symptoms: depression, incoordination, head tilt, encephalitis (inflammation of the brain), and skin hypersensitivity. If not diagnosed quickly, this can turn into a chronic condition that is more difficult to treat. Blood testing can identify antibodies that have developed from exposure to B. burgdorferi.

A new form of testing was developed at Cornell University several years ago that differentiates between early and late stages of infection.

Equine Motor Neuron Disease (EMND)

EMND is a progressive disease that affects the nerves supplying all muscles. This syndrome is thought to be associated with high copper levels and vitamin E deficiency. There is no treatment for EMND, and the horse will eventually die.

Other Neurologic Syndromes

Other neurologic syndromes exist, including tetanus, botulism, moldy corn poisoning, toxic plant poisoning, middle or inner
ear infection, cerebellar abiotrophy in Arabian foals, and various trauma-related problems to spine or brain.

A thorough veterinary exam taking into account the breed and history of the affected horse will help to identify the cause.

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