

LAME OR NEUROLOGICAL?

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“Your horse may be a wobbler” is a statement made by the attending veterinarian that very few horse owners want to hear. A “wobbler” diagnosis produces the same fear of the unknown that the dreaded diseases colic, founder, and laminitis are capable of producing. This presentation is designed to help the reader have an improved understanding of the clinical signs, diagnostic tests, and possible successful treatment and prevention of the “wobbler” syndrome.

A “wobbler” is a horse with a damaged spinal cord. The most obvious clinical sign is an abnormal gait characterized by wobbling, or a horse that looks like he’s had a fair amount of tranquilizers. Severe damage can actually result in a horse that may fall and have difficulty getting up. Mild cases may present only an inability to change leads or stop smoothly or a negative change in behavior that results in poor performance. The mild cases are often confused with subtle problems of the hind legs, especially of the hock and stifle. The hind limbs are affected because the nerves which supply the area are located on the outside of the spinal cord in the cervical area and therefore are more easily damaged than nerves leading to the front limbs which are protected deep within the spinal cord.

The major causes of spinal cord damage include malformation of the cervical vertebra, trauma to the vertebra from falling, and viral (herpes or rhinopneumonitis) and protozoa (*Sarcocystis neurona*) infections. The clinical signs of each of these

problems can be very similar as each one can damage the spinal cord in the neck region.

In order to provide accurate information for the treatment and long term prognosis it is necessary to obtain a complete diagnosis as soon as possible. Arriving at a clinical diagnosis usually requires combining the information from a complete neurological exam, radiographs of the skull and cervical area, a myelogram, and testing the spinal fluid.

A neurological exam is not complicated but the interpretation of the results does require some experience and good observation. We recommend that the exams be videotaped so other examiners – often in the eastern states – can render an opinion without having to travel. The tapes can also serve as a reference to determine if there is any clinical improvement with treatment. The following are some of the more basic tests and what is normal and abnormal about each.

Back withdrawal: Pressure is placed over the back and pelvis to determine if the patient resents the pressure. A normal horse will not react but a “wobbler” will withdraw by depressing the spine in a squatting position. This is not a sign of pain but a sign of weakness as a result of nerve damage. Horses with painful spines do not usually squat because squatting would result in more pain.

Tail and anal tone: The normal horse should have tone in the tail when it is elevated. A horse with spinal cord problems will have a very flaccid tail especially if the damage is in the lumbar or sacral areas. The anus should pucker when stimulated and not remain wide open.

Panniculus or skin sensation: The sensation along the entire spine is tested with the end of a ballpoint pen on both the left and right sides. A normal horse should move the skin and muscles as though being irritated by a fly. Horses with spinal problems often do not react in the area that is damaged. This test can be quite variable, as some horses are very stoic while others react as though they were going to have an injection.

Mobility of the neck: The horse is quietly and gently encouraged to bend their neck so that the nostrils reach behind the shoulder. This should be repeated on both sides. The use of a carrot or a handful of grain will often encourage the patient to reach their neck back behind the shoulder. A horse with a painful neck, cervical fracture, or an arthritic vertebra will refuse to bend the neck or will try to twist around to the carrot by moving their legs. Some horses with severe problems will become more ataxic (drunken) after this test. Others may have a difficult time eating either off the ground or from an elevated hay net.

Placement tests: The front legs are taken one at a time and crossed over the front of the other leg or placed in a wide stance. Normal horses should instantly replace their legs to the proper position while horses with spinal cord problems can

take a long time to recognize their awkward stance. This test should be repeated on the opposite side and can also be done on the hind legs on subtle cases. We do not recommend doing this on very obvious wobblers, as there is some risk to the patient, handler, and examiner when trying to perform this on horses with very poor balance.

Tail sway: The tail is pulled to each side by the examiner while the patient is being walked by an experienced handler. Normal horses resent the tail pull, but wobblers are easily pulled to the side while walking and when the pressure is released, they overcorrect or sway to the other side.

Tight circles: The patient is walked in a very tight circle pattern. A normal horse has the outside front foot placed in front of the inside front foot and the inside hind foot placed in front of the outside hind foot. Horses with spinal cord problems will be confused and often reverse this order or pivot on the inside foot instead of lifting the leg. They will also swing the hind leg very wide (circumduction). The severe cases may even step on themselves or almost trip and fall.

Hills: The patient is led up and down an incline with the head in a normal position and then again with the head elevated. Normal horses place their hind feet flat on the ground and do not elevate the front feet (hypermetria) when going down hill. When coming up hill the normal horse should also walk with flat rear feet. Abnormal horses walk downhill as though they have been tranquilized (truncal ataxia) and will knuckle over on the hind fetlocks. The patient will walk on their toes coming up hill and swivel the toes and hocks laterally trying to get enough strength to get up the hill. Walk the patient with the head elevated and if the horse is affected, the signs should be even easier to see. We recently have associated marked rotation of the hind legs coming up hill and knuckling of the fetlocks going down with increased uptake of radioisotope in the sacrum/ sacroiliac area.

Free exercise: If the patient is not severely affected then they are allowed to run free in a paddock. Horses with spinal cord abnormalities bunny hop with the hind legs at a canter, will often be on the incorrect lead behind, and will knuckle over behind when trying to stop. Mildly affected horses have a very impressive animated gait at the trot that usually makes dressage owners salivate.

Hopping: This test should only be done by an experienced examiner on soft footing. Affected horses will almost fall if encouraged to hop with one front leg held off the ground. Some horses have a strong side and a weak side. If the horse hops when the left front leg is off the ground and refuses to hop when the right leg is off the ground, we assume that the left side is affected.

Backing: Neurologically compromised horses will drag their toes when backing – sometimes all 4 and sometimes only one depending on the degree of weakness. They will often have a delay in moving the hind feet with the front and many will give the appearance of almost sitting down. Patients with pelvic fractures

(especially the sacrum) are very reluctant to back up.

Blindfold: This test should only be done by an experienced examiner on soft footing. We do not usually do this test because it does not work on horses that only have spinal cord problems. If the horse has a brain or middle ear problem then they will fall down or start to lean.

After the neurological exam is complete and there is a high index of suspicion that the cervical area may be the source of the problems, a series of radiographs (x-rays) are taken with the patient lightly sedated. The radiographs are then examined for fractures, collapsed intervertebral disc space, misalignments, narrowed spinal canal measurements, and arthritic articular facets. Depending on the findings and the relative urgency, a myelogram is the next procedure indicated.

Wobbler's Diagnostic Tests

After the neurological exam has been completed and neurological abnormalities have been seen, there are a number of tests that can be done to determine the cause of the damage to the spinal cord. Without an accurate diagnosis it is difficult to discuss possible treatments and the long-term results.

Cervical Radiographs

Radiographs (x-rays) of the cervical area can be taken with portable units now due to the significant improvements in technology over the last five years. With only a small amount of sedation, diagnostic radiographs can be taken with the patient still standing.

After the radiographs have been developed, they are examined for fractures, arthritis of the articular facet joints, narrowing of the spinal canal, and degeneration of the disc space. These conditions do not always result in compression of the spinal cord, but can be indications of possible spinal cord compression. Spinal cord compression requires a myelogram to confirm the diagnosis.

Myelogram

A myelogram is obtained under general anesthesia by replacing the clear radiolucent cerebrospinal fluid with an iodine base fluid that will outline the spinal cord when viewed by radiographs. This is accomplished by carefully inserting a 31/2" spinal needle into the space between the first and second cervical vertebra (A-O space). Feeling a "pop" indicates penetration of the protective membrane (dura mater). The CSF (cerebrospinal fluid) is withdrawn through a long

extension tube and then the dye is injected over a three-minute period of time. A series of radiographs are then taken with the cervical vertebra in neutral, flexed, and extended positions. Cord compression is diagnosed when both the dorsal and ventral dye columns are 50% reduced in width when compared to the neutral position.

Many times more than one area is compressed which is very important to know when the different options for treatment are being considered. A few other important things to know before considering doing a myelogram is that it is an invasive procedure done under general anesthesia on horses that do not have a normal balance and that these factors can lead to a small percentage of horses having complications (< 5%) during recovery. The quality of recovery from anesthesia is important especially if surgery is being considered. If the patient has a quiet recovery from the myelogram anesthesia then they will usually recover well from surgery.

Laboratory Tests

The analysis of the CSF is usually done at the time of a myelogram. The fluid is examined for increases in white cells that might indicate an infection, for unusual cells that might be seen with a neoplastic (cancer) condition, and for the presence of antibodies for herpes virus or protozoa (sarcocystis). There are also some families of horses and environmental areas that result in Vitamin E deficiencies and blood samples for Vitamin E levels can also be sent off to laboratories that specialize in these conditions.

Bone Scan

The use of a radioisotope (technetium 99) to detect areas of bone inflammation in the spine is routinely done at our hospital. The isotope is injected into the vein and after 3 hours the horse is put in front of a detector. With the magic of computers an image is created of the area being scanned. If the bone in that area is inflamed then there will be an increased amount of isotope at that site which is manifested by a more intense image.

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