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Equine Section, Department of Animal Sciences, University of Kentucky

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# Wobbler Syndrome in Horses

*Equine Section, Department of Animal Sciences*

**W**obbler Syndrome refers to a number of disease states in the horse. The most common is termed cervical vertebral malformation (CVM) and is characterized by malformation or compression of the spinal cord which leads to spasticity, ataxia, and incoordination. These symptoms are caused by damage to or compression on the spinal cord.

Cervical vertebral instability (CVI) and cervical static stenosis (CSS) are the two distinct types of CVM. CVI causes dynamic spinal cord compression. It typically affects horses from 4-12 months of age. CSS typically affects horses between 12-36 months of age and is characterized by a closing of the cervical canal causing compression on the spinal cord. The compression, malformation or lesions of CVM usually occur between the third and fifth cervical vertebrae.

The miniature horse is the only breed that has escaped diagnosis of the wobbler syndrome. The Thoroughbred, Quarter Horse, and Morgan are the most commonly affected breeds.

## Causes

The exact cause of the wobbler syndrome in horses is unknown. It is believed that the syndrome is caused by several factors: (1) genetic predisposition, (2) nutritional imbalances, (3) rapid growth, (4) physical trauma, or (5) a combination of these.

Researchers have suggested that the wobbler syndrome is related to neck length, implying the longer the neck, the more likely the horse is to develop the syndrome. Surveys have shown that males with wobbler syndrome outnumber females three to one. The reason for this sex difference is not fully understood. However, the difference may result from the influence of estrogen and testosterone on rate of growth or on the development of orthopedic disease.

The breeding of two wobbler parents does not always increase the incidence of the syndrome in the offspring. However, other metabolic bone disorders such as osteochondrosis, physitis, and contracted tendons

are more common in the offspring of wobbler parents.

Nutritional imbalances and physical trauma are two causes that are the easiest to control. Nutritional imbalances can be avoided by feeding a balanced ration that meets the nutrient requirements for the particular class of horse being fed. For more information on feeding, consult the nutrition series ASC 111-115. Physical trauma usually results from injury, particularly when a young horse is tied up for the first time or when a horse is cast in a stall.

## Clinical Signs

Malformation most commonly occurs between the 3-4, 4-5, and 5-6 cervical vertebrae, depending on the type of CVM. Lesions occur most frequently at C<sub>3-4</sub> and C<sub>4-5</sub> for CVI and compression at C<sub>5-6</sub> and C<sub>6-7</sub> for CSS. However, malformation, lesions, and compression have been reported on other cervical vertebrae.

These malformed or compressed vertebrae press against the spinal cord and interfere with messages being sent by the brain. Therefore, the interference with normal nerve transmission from the brain to the legs leads to noticeable incoordination (ataxia). Ataxia is usually seen in the hind quarters. As the condition persists, weight loss and weakness may be noticeable. Clinical signs may appear suddenly or gradually, following known or suspected trauma, and may increase in severity until death. However, death from the wobbler syndrome is unusual. The horse may show periods of slight improvement, but will never completely recover, if aggressive treatment is not performed.

"Wobbler's heel" is another clinical sign that occurs when the horse is in advanced stages of the syndrome and incoordination is evident. Wobbler's heel is characterized by the horse reaching forward with the back foot and lacerating the bulbs of the heel of the front foot. This could cause lameness, further complicating the syndrome.

## Diagnosis

Diagnosis of spinal cord damage requires quality radiographs of the cervical region. Radiographs will reveal signs of "lipping," "flaring," evidence of lesion or stenosis of the vertebrae to indicate whether the horse is suffering from CVM. A myelogram is also used to show a static cord compression. The procedure involves injecting radio-opaque dye into the area surrounding the spinal cord in the region behind the head. The problem with high quality radiographs and a myelogram is that they are very expensive and require special equipment and expertise.

Horse owners and veterinarians can perform less costly tests to determine whether a horse has CVM. The first sign an owner may notice will be incoordination of the rear legs. Horses can compensate with vision to coordinate the fore limbs, but will stumble with their hind legs because they cannot visually compensate. Turning the horse in a small circle is a quick and easy test to detect a horse with wobblers syndrome. If he is suffering from the syndrome, he will swing his rear legs out as he makes the turn. Also, horses afflicted with the syndrome will have trouble backing up. Instead of letting their rear legs back up in a two beat diagonal fashion with their front legs, they back up with their front legs until they get in an awkward position and they will hop backwards with their rear legs.

Two other ways of detecting wobblers syndrome are by performing the sway test and by checking the weakness of the tail. Two people are necessary to administer the sway test. One person walks the horse away while the other person grabs the tail and pulls the horse to one side. A normal horse will allow you to do that once before rapidly correcting itself. However, a horse exhibiting wobblers syndrome cannot tell where his limbs are, especially his hind limbs, thus, you can easily pull him over to one side.

Another simple test used routinely is simply to pick up the horse's tail. If there is absolutely no resistance, the horse is having some type of problem with normal nerve function in his spinal cord. Thus, the weakness in resistance of the tail is attributed to the pressure on the spinal cord caused by the malformation of the cervical vertebrae.

Diagnosis of wobblers syndrome is not easy because several other causes of incoordination exist in horses, such as viruses, protozoa in the spinal cord, parasites, tumors, or fractures.

## Treatments

Horses with this syndrome can be treated in different ways, either through drug therapy, surgery, or aggressive management. Drug therapy and surgery are very costly and are not always practical for most horseowners.

Certain drugs decrease the nerve tissue swelling and intracranial pressure. Some examples of these drugs include osmotic agents, such as mannitol (0.5-1.0 g/kg, i.v.), dimethylsulfoxide (DMSO) (0.5 g/kg of a 40-50% solution, i.v. diluted with isotonic fluids and given by gravity flow), and diuretics, such as furosemide. Steroids are frequently used clinically for spinal cord and head trauma, but experiments have shown no benefit.

Those horses that cannot be helped with drug therapy have the surgical option. Veterinary surgeons in the United States have recently devised a surgical procedure adapted from human surgery called the cloward method for fusing vertebrae. The surgical technique involves drilling a hole between the affected vertebral bodies from underneath the neck and inserting a stainless steel prosthesis called a "Bagby Basket," which fuses and immobilizes the vertebrae. The surgery requires specialized instruments and takes approximately 1 1/2 hours to perform.

In the long term, complete recovery and return to normal athletic pursuits have occurred in 50-55% of the cases. Because of the later age of onset (2-4 years), some animals may not necessarily return to racing, but nevertheless, compete adequately in other fields.

Aggressive nutritional management and controlled exercise, coupled with early diagnosis, have recently proven to produce excellent results in the treatment of "wobblers." Researchers at the University of Pennsylvania have been very successful in treating wobblers syndrome by substantially reducing nutrient intake and limiting exercise. In some cases, total confinement is required until signs of incoordination disappear and radiographs show no evidence of malformations. Such treatment requires time and patience, but horses receiving this treatment attain normal heights and weights and resume normal activity.