**Wobbler’s Syndrome**

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Wobbler’s Syndrome is the result of abnormalities in the cervical vertebrae (neck), which cause crushing of the spinal cord and resultant neurological signs. It is a complex condition which can result in a horse being permanently retired from riding or can even necessitate euthanasia.

A basic understanding of the anatomy of the cervical vertebrae is a key to understanding this condition. A horse has seven cervical vertebrae in their neck with the soft spinal cord running through the middle housed within the vertebral canal. The cord is then surrounded by cerebral spinal fluid. Intervertebral discs and cartilage act as cushions between the bony vertebrae and allow for comfortable movement.

Wobbler’s Syndrome is also referred to as Cervical Spondylomyelopathy (CSM). Within this heading, there are two different classifications of Wobbler’s, which relate to the different ways the vertebrae can compress the spinal cord:

**Cervical Static Malformation (static compression)**

This is where there is constant compression on the spinal cord, regardless of the neck position. The compression results from degenerative joint disease (DDD) between the vertebrae, which results from faulty development of the bone and cartilage during the first 1-2 years of life. This is significant because DDD takes time to develop, meaning that clinical signs can lag the initiating cause by many months to years. Hence, this type of Wobbler’s is most common in horses over two years of age.

**Cervical Vertebral Instability (dynamic compression)**

This classification relates to when the spinal cord is compressed only when the neck is in a certain position - typically flexed or extended. This results from irregular development of the growth plates in the vertebrae which, in turn, affect the way they articulate with each other. Moving the neck can cause mild dislocation (subluxation) and compression of the horse’s spinal cord. This form is most common in horses under two years of age.

Clinical signs

Clinical signs emerge when the spinal cord is compressed by the vertebrae, which interrupts the nerve impulses (messages) to the horse’s legs. This causes ataxia and weakness, which means the affected horses don’t actually know where their legs are and, therefore, are more likely to stumble, lose balance, step on themselves or onto their handlers. Thus, horses that are diagnosed as ‘Wobbler’s’ can present for a wide range of complaints, such as poor performance, toe dragging, falling down or for an obscure lameness.

The symptoms are normally symmetrical and initially affect the hindlimbs but, as the disease progresses, the forelimbs will also be involved. Although this disease normally progresses slowly, horses are often presented for acute and sudden onset of signs following a trauma, such as flipping over or running into another horse or object.

Neurological Assessment

Your veterinarian will assess your horse for neurological deficits in various ways. Turning the horse in a tight circle, backing, or walking up and down hills will be problematic for horses that are not fully aware of where their legs are. Some horses will use sight to compensate for deficits, so lifting their heads and asking them to walk forward and down hills can reveal hidden symptoms.

The tail pull test is where the horse walks in a straight line and the vet pulls the horse sideways by the tail. A normal horse will only take a step or two sideways, and then regain balance and resist the pull. A Wobbler can sometimes almost be pulled right over with this test. The severity of the symptoms and the response to treatment will dictate whether a horse returns to work, is retired to the paddock or whether euthanasia is recommended.

There is a long list of diseases which can cause the above clinical signs, so it is vital that a veterinarian assesses your horse before a diagnosis of Wobbler’s is made.

**Diagnosis**

A thorough neurological exam, in combination with diagnostic imaging, is necessary to diagnose a horse with Wobbler’s and to determine which type. Radiographs of the cervical spine can show evidence of narrowing of the vertebral canal, degenerative joint disease between the vertebrae or malalignment.

Plain radiographs alone are not enough to make a definitive diagnosis of Wobbler’s. A myelogram (myelography) is required to prove that the changes on the radiographs are crushing the spinal cord. This involves a general anaesthetic and the injection of a radio-opaque liquid into the fluid surrounding the spinal cord. The cervical spine is then radiographed again whilst the horse is anaesthetised, and any interruptions of the contrast liquid between the spinal cord and vertebral canal denotes spinal cord compression.

**Causes**

This is a developmental condition in that, as the cervical vertebrae are growing and maturing, there are factors influencing on them that cause them to form abnormally.

Regardless of the type of Wobbler’s, there appear to be key factors that will increase the risk of your horse developing symptoms.

**Diet and nutrition**

Diet is the leading cause in the development of Wobbler’s. A diet with deficiencies and excesses will affect the bone and joint development of young horses, and lead to one or more orthopaedic conditions. Some of the culprits are listed below:

- Excessive energy in the diet
- Excessive carbohydrates
- Diets deficient in copper and zinc
- Abnormal calcium-to-phosphorous ratios

It is common for horses with Wobbler’s to be described as ‘tall’ or ‘big’ for their age and to be fast growers.

**Breed and genetics**

Any breed of horse can be affected by Wobbler’s, but Thoroughbreds and Quarter Horses are over-represented. Interestingly, males are more commonly affected than females.

Although this disease normally progresses slowly, horses are often presented for acute and sudden onset of signs following a trauma, such as flipping over or running into another horse or object.
Treatment can either be conservative (medical) or surgical, but trauma to the cervical vertebrae can cause defects of the Wobblers under one year of age are the result of abnormal defects to correct themselves with appropriate intervention. These age, there is still the growth potential left in these bones for these defects in a horse with Wobbler’s. Anti-inflammatories should be given to reduce any inflammation or swelling in the spinal cord. Feed restrictions should be implemented with horses receiving 65-75% of their recommended daily nutritional needs. The diet should be balanced for minerals, and contain a high level of copper and zinc, whilst ensuring a correct calcium-phosphorus ratio. Extra vitamin A and E, as well as selenium, can be added to the diet. The hay fed should be of low nutritional quality. Repeated examinations and radiographs are necessary for assessment of response to treatment and owners should be committed to a prolonged recovery time. Mildly- to moderately-affected horses can have a good prognosis for recovery.

In horses older than one year of age, the bone growth potential dramatically decreases. In these cases, the aim is to alleviate the inflammation caused by the crushing of the spinal cord and, thus, hopefully improve clinical signs. Again, confinement is required and a combination of anti-inflammatories are used, such as phenylbutazone (bute), steroids and dimethylsulfoxide (DMSO). Prognosis for this category can be fair to guarded as horses often enter a cycle of improvement and deterioration.

Surgery

The recommended surgical technique is the same for both forms of Wobbler’s, but for different reasons. Ventral cervical vertebral stabilisation is where a metal implant is used to fuse the affected vertebrae together. Surgery can provide a fair prognosis for return to riding.

In horses with Cervical Vertebral Instability, the vertebrae are fused in extension to minimise the compression on the spinal cord. The expectation is that the vertebral canal will then re-model to further reduce any compression and resolve clinical signs.

Researchers have not been able to show that Wobbler's Syndrome is heritable, in that mating an affected mare with an affected stallion has not produced affected offspring. It is possible, however, that there could be a genetic predisposition in some horses, but further research is required.

Exercise and trauma

Trauma to the cervical vertebrae can cause defects of the developing bone and, therefore, potentially lead to Wobbler’s. In horses that are already predisposed to developing Wobbler’s, excessive exercise or rough housing may increase their risk. Interestingly, and importantly, the above factors are also key players in other developmental conditions, such as bone cysts, osteochondrosis desiccans (OCD), contracted tendons and physitis. It is not uncommon to find one or more of these other defects in a horse with Wobbler’s.

Conservative treatment

Wobblers under one year of age are the result of abnormal development of the growth plates in the vertebrae. At this young age, there is still the growth potential left in these bones for these defects to correct themselves with appropriate intervention. These horses should be confined to reduce exercise-induced trauma to the developing cervical vertebrae.

Providing a well-balanced diet during the first few years of life is key to promoting the correct bone formation in your young horse. Dietary requirements for your horse should be discussed with your veterinarian and an appropriate diet implemented.

Right: A horse preparing for surgery. Image courtesy WestVETS.

Medical treatment is less likely to be effective in horses with Cervical Static Stenotic Malformation. In these cases, surgery is often the only option. Once the vertebrae are fused there is atrophy (shrinking) of the soft tissue structures surrounding the spinal cord and between the vertebrae. This, in itself, can be causing pressure on the spinal cord and, therefore, clinical signs can improve.

There are often also bony projections that are compressing the vertebrae. These are expected to re-model and hopefully regress with time. However, this is a very slow process; meaning that the chance of neurological recovery is lower than in those horses with compression only from soft tissue. Regardless of the treatment, the shorter the duration of clinical signs, the better the chance of improvement. Unfortunately, some horses are so severely affected that they are a danger to themselves and their handlers, and euthanasia is the safest and most humane option.

Prevention

Providing a well-balanced diet during the first few years of life is key to promoting the correct bone formation in your young horse. Dietary requirements for your horse should be discussed with your veterinarian and an appropriate diet implemented.

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