

The Truth About Ringbone

Is this disease really the end for a riding horse? Find out the latest prognosis.

By Janice Posnikoff, DVM

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Ringbone is a common diagnosis. Horses young and old, backyard pets and high-level athletes alike are all susceptible to the disease. Some horses are unaffected; for others it spells the end of life, and for those in between it's a lifetime of arthritis with or without lameness. As a vet, if I find it on a pre-purchase exam it's a deal breaker. If I tell an owner a horse has it, it conjures up feelings of dread even for the seasoned horseman. Do a Google search on ringbone and you will get thousands of sites, and there are almost that many different opinions on how the disease develops, how to treat it and the prognosis for soundness. Here I will add to the discussion with the latest on ringbone.

What is Ringbone?

Ringbone is a horseman's term for osteoarthritis, or bony arthritis, of the pastern and/or coffin joints—ringbone in the pastern joint is called high ringbone, and in the coffin joint low ringbone. Arthritis is any condition that causes inflammation of the joint. Osteoarthritis forms when the inflammation within the joint creates enough damage that the body lays down bone in an effort to heal the damaged tissue. Typically the bony development occurs at the joint surface or the attachment sites of the joint capsule to the bone. Another term to describe this type of damage to a joint is degenerative joint disease (DJD).

The preferred veterinary terminology for high ringbone is osteoarthritis or DJD of the proximal interphalangeal joint (pastern joint); or in the case of low ringbone: osteoarthritis or DJD of the distal interphalangeal joint (coffin joint). For convenience, I will refer to the condition as ringbone.

Some also classify the type of ringbone as articulating, meaning involving the joint surfaces, or nonarticulating, meaning not involving the joint surface but rather the joint capsule where it attaches to the bone. Ringbone can start out as nonarticulating and advance into articulating. Non-articulating is less painful since it doesn't involve the joint surface where weight bearing occurs and is therefore considered less serious.

The pastern and coffin joints are located in the lower limb of all four legs. The coffin joint is a large high-motion joint within the hoof; the next joint up is the pastern joint. The pastern joint is a small joint that doesn't move very much but carries a lot of weight. It is located between the top of the hoof and the fetlock. Most people don't even realize that a joint exists here.

How Does Ringbone Occur?

Riding With Ringbone

I personally own and ride a horse that has high ringbone. Although he is no longer a performance horse, I still ride him on trail and he is very comfortable because I give him what he needs. He responded very well to extracorporeal shockwave therapy (ESWT), but became lame again when I stopped riding during the winter rains. I will do another ESWT treatment on him to see if I can make him more comfortable. He has had joint injections, and I give him Legend I.V. and Adequan I.M. regularly.

Initially he had a small bone spur on his pastern joint that turned into significant ringbone over the course of about three years. His current bony changes haven't progressed over the last two years. On the whole this is very typical for this disease. He has been a great lesson for me on how to manage ringbone, how to manage the owner and that a horse with this disease can still have a good quality of life.

—Janice Posnikoff, DVM The most common cause of ringbone is abnormal stress on the joint, causing joint surface damage and subsequent bony development. The abnormal stress can be in the form of poor conformation, imbalanced shoeing or working on poor ground surfaces. Base-narrow or base-wide conformation, combined with a toed-in or toed-out

stance, creates increased weight-bearing forces on the inside or outside of the joint by causing the horse to land first on the outside or inside of the leg. These increased forces can cause microdamage to the cartilage on the joint surface and microtearing of the joint capsule or of the collateral ligaments (stabilizing ligament on either side of the joint). The body reacts to this microdamage initially as inflammation. Inflammatory cells release toxins that create more tissue damage and thin the joint fluid. More tissue damage creates more inflammatory cells, and a cycle begins of increasing damage. As the damage increases the body attempts to heal initially with scar tissue, which then progresses into bony development.

The length of time it takes for this to occur varies and is dependent on many factors. The more trauma, and the more severe the conformational abnormalities, the quicker the disease progresses. Hoof balance, proper trimming and shoeing, footing and exercise are very big factors in this disease. Unbalanced hooves, as well as long toe/low heel, can cause severe stress on the joints. Shoeing a horse with shortened toes to increase breakover decreases the stress on the joints and helps reduce the inflammation, and can help slow the development of disease. Hard footing increases trauma on the joints, while deep footing increases the flexion of the joints leading to possible overflexion and damage to the joint capsule.

Other causes of ringbone include blunt trauma or lacerations to the joint, and osteochondritis dissecans (OCD). OCD is a malformation of the cartilage layer during a horse's formative years—the disease leads to large flaps of cartilage within the joint. When a cartilage flap or “chip” is present in the joint, it creates a cycle of inflammation. In the case of trauma, a single trauma event, such as direct hit to the joint or a laceration, can cause the initial joint damage and start the cycle of inflammation.

How Do We Diagnose Ringbone?

Radiographs (X-rays) of the leg are the best way to diagnose the disease. The joint surfaces are usually very smooth, but when ringbone is present extra bone is seen on X-ray.

But it's not always so easy. In the early stages of the disease, the bony changes may not be so evident. Often only a small “spur” is seen on the front of the joint, or some calcification away from the joint surface is visible where the joint capsule or collateral ligaments attach to the bone. Pain, and therefore lameness, is caused by inflammation within the joint. Sometimes a horse is more lame at this stage of the disease.

In these situations your vet must determine if the cause of lameness is from the joint or some other disease process; therefore it's always important to perform a thorough lameness exam. This exam should include watching the horse move on hard and soft ground, jogging straight and in circles. Flexion tests and diagnostic nerve blocks are also important. Horses with ringbone flex positive in the lower limb, meaning lameness results when the lower limb is held in flexion for one minute and then jogged off.

Nerve blocks are invaluable in determining the location of the pain. Once the pain has been localized to the lower leg by response to an abaxial nerve block (block around the fetlock), the pain can be further localized by blocking out each joint. If low ringbone is the cause of pain, then the lameness resolves when the coffin joint is blocked out; in cases of high ringbone, lameness resolves when the pastern joint is blocked out. Diagnostic nerve blocks are very important in the cases where the X-rays are not so obvious.

The severity of the disease varies. Lameness doesn't always correlate with radiographic changes. Some horses with mild bony changes on radiographs are very lame and vice versa. There are many sound horses with obvious ringbone in their pasterns. When a horse has significant high ringbone it can be seen on the front and sides of the pastern as hard lumps or a “ring” of extra bone around the front and sides of the pastern. If the ringbone can be seen easily it is already very advanced. Ringbone in the coffin joint is much more significant and always causes severe lameness since this is the higher motion joint.

As the disease advances it can spread into the joint, causing severe cartilage deterioration and joint collapse, ending in full fusion of the joint. During the process, the horse is severely lame. Sometimes the lameness can become so severe that the quality of life for the horse is very poor and humane euthanasia is chosen.

How Do We Treat Ringbone?

Dealing with ringbone is not a single treatment but rather a whole management scheme that is lifelong for the horse. Everything is aimed at decreasing the inflammation in the joint and saving the cartilage surface.

We start by trying to balance the hoof and increase the breakover for the horse. This means making sure the hoof is level from side to side and the toe is short so that the leg can roll over the front of the hoof quicker, decreasing the stress on the joints.

Next we address the inflammation in the affected joint. Often this means injecting the joint with anti-inflammatory drugs such as corticosteroids, along with synthetic joint fluid called hyaluronic acid that helps replenish the existing thin, weak joint fluid. This helps stop the disease progression and hopefully slows down the damage to the joint surface.

Along with joint injections comes complementary therapy in the form of supplements, exercise management and physical therapy. Oral joint supplements given daily, such as chondroitin sulfate, glucosamine, MSM and more recently oral hyaluronic acid, may help the body to develop more cartilage and joint fluid.

Intravenous hyaluronic acid, called Legend I.V., and Adequan I.M. (polysulfated glycosaminoglycan) are also used quite successfully to preserve the joint. Legend works to produce more joint fluid and act as an anti-inflammatory. Adequan works at the joint surface helping the cartilage. Both are very effective and are often used together.

Herbal supplements may be given in feed to help support the joint. Yucca and devil's claw are common herbal anti-inflammatories. A host of other products are available that combine all of these ingredients as well as some others not mentioned in this article. Most appear to help, but none seem to be outstanding in resolving pain for ringbone. Care must be given when feeding herbal products to avoid allergic reactions or colic. Product concentrations are often inconsistent, and many of these herbs haven't been studied fully in horses.

Horses with ringbone do best with consistent low-level exercise. Horses that stand excessively all day long tend to get more inflammation in the joints and therefore more lame. Constant walking around all day on pasture helps stimulate circulation and decrease inflammation within the joint, therefore decreasing lameness. The amount of exercise varies depending on the degree of ringbone and the tolerance of the horse. Some horses with this condition are able to maintain careers in the lower levels and often do better if kept in a consistent work program. Soft footing is better than hard, but too soft causes overflexion of the joint and increased inflammation.

Physical therapy is also available for these horses. Warm therapy helps loosen joints; liniments and wraps help support the joint. Massage therapy, acupuncture, chiropractic and other alternative therapies have varying degrees of efficacy, but all aim to loosen tissue and decrease inflammation, as well as help other muscles and joints that are compensating for the ringbone.

One promising new therapy called extracorporeal shockwave therapy (ESWT) is proving to be very effective for horses with ringbone. The true nature of how shockwave therapy works is still unknown, but it is the focus of much research right now by many major institutions.

What is known is that many horses show dramatic improvement with ESWT, so it's become a therapy that is now being tried for a variety of problems. For ringbone it has proven to be effective for horses that are not too severe. I personally have seen many horses respond to the therapy, including my own horses.

Response to shockwave therapy appears to depend on severity of the ringbone and the aftercare. More severe cases require more than one treatment, typically one treatment weekly for three weeks. Many horses with less severe changes respond after only one treatment. It also appears that if the horse returns to regular exercise, the lameness resolves, but if the horse stands idle for any length of time, the lameness can return. Horses with severe ringbone don't appear to respond to this therapy. As with all therapies, ESWT should be discussed with your veterinarian.

The Big Picture

The time between when a small spur forms and the joint fuses is our time to help the horse with ringbone. I use a combination of all the therapies mentioned above, and in most cases I can keep a horse active and happy for many years before the ringbone gets too severe. Thankfully, I haven't had too many ringbone cases that I have had to put down, but I currently have a couple that I know I will have to sooner or later. These severe cases are lame but comfortable, and I usually inject their joints approximately once a year. Each time though, it becomes harder to inject the joint, and I know there will come a time where I won't be able to due to the severe joint collapse and bony development.

For my ringbone patients that are doing well, I attribute it to good management on the owner's part—essentially catching the problem early and giving good joint support. However, I have seen some of these horses become very lame, even with good joint management. Unfortunately I can't predict which horses will do well and which won't. Ringbone can affect any horse.

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