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Advances in Managing Chronic Foot Pain



MRI is a diagnostic asset that has allowed veterinarians to discover many causes of foot pain.

Photo: Kevin Thompson/The Horse

Improved diagnostics and more promising treatments are putting many foot-sore horses back to work

My mare, Diamond, could be the poster child for the subject of this article. Two springs ago, she was coming along well in her dressage training, and visions of fun outings to clinics and shows were dancing in my head ... until the day I got on, and she was off. Left front foot.

The ensuing weeks and months went by in a haze of diagnostic tests, treatment efforts, and veterinary bills. After exams using ultrasound and other, less-expensive modalities proved inconclusive, and time had not, in fact, healed all wounds, I was advised to take Diamond for the gold standard in diagnosing foot problems: MRI, or magnetic resonance imaging.

The MRI revealed the cause of my mare's foot pain: a lesion in the deep digital flexor tendon around one of her pastern bones. We embarked on a course of some of the latest and greatest treatments, which you'll read about in this article. High-tech intervention, plus months of stall rest, followed by months of pasture turnout, equal one happy mare who as of this writing is pasture-sound, but who may or may not be a riding horse again.

Diamond's condition falls under the category of what is known as chronic foot pain—a foot-related lameness that persists for more than, say, a couple of months, in experts' estimation. Fortunately, diagnostic advances are helping veterinarians determine exactly what structures are affected—gone are the days when all foot pain was lumped together and labeled "navicular disease"—and newer therapies offer the promise of better, or even complete, rehabilitation. Let's take a look at where the science stands at the moment.

"Chronic," Then and Now

"The old definition of 'chronic' was that we couldn't control or manage the issue," says José M. García-López, VMD, Dipl. ACVS, ACVSMR, associate professor of equine sports medicine and surgery at Tufts University's Cummings School of Veterinary Medicine, in North Grafton, Massachusetts. But "that is changing with MRI, which gives us a better chance of identifying and putting a name to the condition."

"'Chronic' refers to a period of time," says Jack Snyder, DVM, PhD, Dipl. ACVS, professor emeritus after more than 30 years at the University of California, Davis, School of Veterinary Medicine and a five-time Olympic Games veterinarian who's now based at Circle Oak Equine, in Petaluma, California. "After two months, I'd start putting (a condition) in the 'chronic' category." Even a lameness that starts as an acute injury can wind up as a lingering issue, he says.

"Chronic" also implies a condition that requires veterinary intervention. "If at 60 days the horse is still lame, I get worried that we will need to do more therapeutic intervention than just conservative therapy," such as stall rest, Snyder adds.

Types of Chronic Foot Problems

Radiographs (X rays) have long been able to show bone-related injuries, such as fractures. But soft tissues, such as ligaments and tendons, don't show up in radiographic imaging. Ultrasound, which can be useful for diagnosing soft-tissue injuries in the leg and elsewhere, can't always penetrate deep enough into the foot to offer a conclusive diagnosis. That's why the powerful MRI has been such a diagnostic asset.

Thanks to MRI, veterinarians have discovered that equine foot pain has myriad causes. García-López and Snyder rattle off some of the more common: Tendon tears; adhesions in the navicular bone or navicular bursa (the sac cushioning the bone from the deep digital flexor tendon, or DDFT); collateral-ligament injury of the coffin joint; tears of the impar ligament, which attaches the navicular bone to the coffin bone; subchondral (located just under the cartilage surface within a joint) lesions in the pastern bones; and bone contusions (bruising).

"It's important to put a diagnosis to the injury," says García-López, because "the prognosis and treatment are very different than they were 10 years ago."

Horse owners will be glad to know that MRI of the equine foot no longer automatically requires "laying the horse down" under general anesthesia. Diamond's deep digital flexor tendon lesion was diagnosed via standing MRI, an outpatient procedure that required only sedation and a same-day round-trip to the clinic.

Many Causes, Many Treatment Options

Once your veterinarian has come to a definitive diagnosis for your horse's foot-pain condition, it's time to select the treatment regimen that offers the best chance for recovery.

For some tendon and ligament injuries, the modalities of choice are regenerative: injections of platelet-rich plasma (PRP) into the lesion, possibly combined with stem cell therapy. The horse serves as his own blood and bone-marrow donor for these procedures; in Diamond's case—she received both PRP and stem cells—an outpatient visit to the clinic for harvesting was followed by a return outpatient visit for the injections a few weeks later, after the stem cells had been grown. The thinking is that these substances might help spur the healing process, although rest remains necessary.

"Some chronic foot pain conditions are not necessarily a lost cause—not necessarily fixable, but manageable." Dr. Jose M. Garcia-Lopez

For lamenesses involving the navicular bursa, García-López is bullish about navicular bursoscopy, a surgical procedure in which the practitioner debrides the lesions and adhesions. He says bursoscopy "has better numbers" over other therapies in terms of healing, when used alone, but "it's still not known whether other therapies will enhance its effects."

Veterinarians often combine treatment modalities when tackling chronic foot pain. García-López and Snyder, sometimes use extracorporeal shock wave therapy (ESWT) in conjunction with other treatments, for example. With ESWT, veterinarians use a probe to deliver pressure waves to the injury site with the hope of stimulating bone growth or tissue healing.

Snyder calls ESWT "the biggest game-changer" in soft-tissue injury treatment, but notes that it works better in ligamentous tissue than on tendons. Using ESWT he has seen an "improved prognosis" of injuries to the suspensory, collateral, and distal sesamoidean ligaments, as well as to other soft-tissue injuries. "It doesn't work so well with injuries to the deep digital flexor tendon," he says, and "some people argue that you don't get a good shock-wave effect in the foot."

Regenerative therapies can also be used in conjunction with ESWT. "I do more shock wave followed by PRP," says Snyder. "If I feel there is a bigger hole in the lesion, I'll use PRP and stem cells."

Another modality is high-intensity laser therapy, which Snyder says has a "positive effect on soft-tissue healing," as evidenced by studies done in humans. It, too, can be used with ESWT, PRP, stem cell therapy, or a combination of all three, he says.

You have undoubtedly seen advertisements for medications aimed at women with osteoporosis, which is a decrease in bone mass and density that can lead to fractures and other problems. Horses can develop a similar affliction in the bones of their feet. In such cases, veterinarians might prescribe medications that are in the same class as those used in women. These substances, known as bisphosphonates (brand names in the equine world: Tildren and Osphos), work by regulating the bone's metabolism, says García-López. They "slow the progression of osteoclastic activity," he says, referring to the bone cells called osteoclasts that are responsible for bone absorption, which can lead to cysts (fluid-filled holes).

Snyder agrees that bisphosphonates "do seem to have a positive effect." They "work anywhere there is significant bone remodeling that is painful."

Not all bone-related foot problems are osteoclastic in nature, however. In cases of sclerotic (abnormally dense) navicular bones, bisphosphates are "not indicated," says García-López.

And don't dismiss one age-old, last-ditch method of eliminating foot pain: the neurectomy, in which a veterinary surgeon severs the palmar and/or plantar nerves so the horse no longer feels pain.

"People make a big argument against neurectomy, but it still has a place in our regimen," says Snyder. "It's not without risk, but it's not that expensive, and it provides a chance for the horse to get back moving and being useful."

The author's mare, Diamond, underwent platelet-rich plasma and stem cell therapy to treat the lesion in the deep digital flexor tendon around one of her pastern bones.

Your veterinarian can provide additional detailed information regarding the costs, odds, risks, and potential benefits to help you make an informed decision as to what's best for you and your horse.

Finally, we'd be remiss if we didn't mention one equally important player on your horse's hoof-care team: the farrier. Proper trimming and shoeing—corrective, if needed—are just as essential as good veterinary care in managing chronic hoof conditions.

"With good farrier work and a good diagnosis, we may be able to keep the horse going," says Snyder.

Some Answers, but Questions Remain

Which modality is the most effective for treating which problem? That hasn't yet been quantified, our sources say.

"Studies have not been done yet of the efficacy and comparison of treatment modalities. They need to be done," says García-López. The difficulty lies in the challenge of lining up appropriate study subjects—horses with similar injuries and histories, so researchers can compare treatment responses in an apples-to-apples fashion. The problem, of course, is that no two horses are the same and no two injuries are the same; so it will take a while to amass conclusive findings. For now, there's a bit of let's-cross-our-fingers-and-hope-this-helps in the decision-making process.

"There have been some small studies, but no big, blinded studies comparing the new modalities we have now," says Snyder.

Furthermore, it's not yet completely understood exactly how some of these treatments work. "We have a long ways to go with (understanding) stem cells and PRP," says Snyder. As for ESWT, "how it interacts with tissue is up for debate," he says. Similarly, the long-term effects of bisphosphonate use in horses have not been studied either.

In Snyder's view, veterinary medicine has advanced to the point that we're just beginning to explore the new therapies' potential. Beyond our current applications and expectations, "I think stem cells and growth factors will be cutting-edge," he says. "In the future, there will be specific methods of stimulating specific tissues."

The Tide is Turning

"These modalities have more effect than doing nothing," Snyder says. For example: "In the 1980s, only 20 to 30% of horses with a bad high suspensory injury would recover. With the use of shock wave, it's up to 60 to 70% in some studies."

García-López concurs. "In horses with tendon lesions at the level of the navicular bone and bursa, a good number—around 65 to 70%—can come back to an acceptable level of soundness" (although erosion in the navicular bone brings that statistic down to about 40%, he adds).

"Some chronic foot pain conditions are not necessarily a lost cause," García-López stresses. "Not necessarily fixable, but manageable."

Note the use of the term "acceptable level of soundness." Some lucky owners see their horses make a full recovery and return to their previous levels of performance. In other cases horses might resume careers, but at a less-demanding level. Still others might require a career change to something less stressful to the feet—say, from jumping to dressage. And some, unfortunately, won't regain a usable level of soundness.

Snyder is sanguine, however. "In the past we've kind of given up (on horses with chronic foot pain). Today we're able to keep a lot more horses going."

"I don't give up very easily," he continues. "It's not very often I have a horse that I can't keep going."

"Some of these conditions can heal," García-López says. "We're not just Band-Aiding."