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Managing Recurrent Foot Abscesses

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How to Re-Cycle Your Mare

Imaging Palmar/Plantar Osteochondral Disease

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Which is Better for Imaging Palmar/Plantar Osteochondral Disease?

Computed technology (CT) and magnetic resonance imaging (MRI) are both good at detecting palmar/plantar osteochondral disease (POD), but they tended to underestimate their size, according to a recent study (*Equine Vet J*. 2023 Nov. 6 https://doi.org/10.1111/evj.14023).

U.K. Researchers compared the ability of cone-beam (standing, Hallmarq Veterinary Imaging) CT, fan-beam CT (Canon Medical Systems) and a low-field MRI (Hallmarq) in diagnosing POD lesions. MRI images were done with 2 different pulse settings.

The image interpreters, who were blinded to the identity of the horses, reviewed imaging details and measurements of POD lesions for the 3 types of imaging. They compared them with the gold standard—macroscopic pathology. In this cross-sectional study, they imaged 35 Thoroughbred cadaver limbs from 10 horses and saw 48 POD lesions over 70 condyles.

On macroscopic examination, POD lesions were detected in both medial and lateral condyles of 35 limbs; 5 limbs only had medial condyle lesions; 3 had lateral condyle lesions, and 7 limbs did not have lesions.

Forty-eight condyles (25 medial and 23 lateral) were found with focal subchondral bone discoloration, which were probable POD lesions. Twenty-two of them also had articular cartilage pathology, including partial- and full-thickness defects. Six had subchondral bone collapse with articular cartilage disruption.

Fan-beam and cone-beam CT identified 46 and 41 POD lesions, respectively, and the 2 different pulse settings of MRIs identified 23 and 18.

They found the sensitivity and specificity of the imaging compared with the gold standard were:

- 95.8% (95% CI 88%–99%) and 63.6% (95% CI 43%–81%) for fan-beam CT;
- 85.4% (95% CI 74%–94%) and 81.8% (95% CI 63%–94%) for cone-beam CT; and
- 69.0% (95% CI=54%–82%) and 71.4% (95% CI 46%–90%) for MRI.

The features seen on the cone-beam CT and fan-beam CT images were similar, and both systems were more sensitive than MRI. However, MRI may be better at detecting changes associated with POD pathological status or severity, the researchers found. **MeV**

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The concurrent use of NSAIDs with Zycosan has not been evaluated. Due to the anticoagulant effects of Zycosan and known anticoagulant effects of some NSAIDs, caution should be used if NSAIDs are concurrently administered. Horses concurrently treated with Zycosan and NSAIDs should be monitored for hemorrhage or other clinical signs of abnormal bleeding (e.g., petechiae, ecchymosis, or epistaxis). The safety of long-term repeat use of Zycosan has not been evaluated. Pigmentary changes in the retina (pigmentary maculopathy) have been reported in human patients following long-term oral use of pentosan polysulfate sodium. It is not known if a similar finding occurs in horses. The safe use of Zycosan has not been evaluated in breeding, pregnant, or lactating horses.
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Injection site reactions were the most frequently reported adverse reactions in the field study. Injection site reactions were associated with clinicopathology changes in some cases. Other adverse reactions reported in more than one horse were prolongation of coagulation parameters (activated partial thromboplastin time (aPTT) and prothrombin time (PT)), lethargy, behavior changes, and colic.
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Is It Pain or Behavior Issues?

By Landon Gray

Recognizing and understanding behavior will help in diagnosing and managing pain in equids, according to information presented at the 2023 BEVA Annual Congress, in Liverpool, England.

"Is it pain or behavior? I think very often it is both," explained **Gemma Pearson**, BVMS, Cert, AVP (EM), MScR, CCAB, PhD, MRCVS, the director of equine behavior at The Horse Trust, in Buckinghamshire, England.

She defined behavior as the motor output of sensory input that is modulated by other factors, including current mood and emotional state. Studies in other species have shown that pain contributes to anywhere from 28% to 82% of unwanted behaviors.

Think about your emotional state when you hurt yourself, she suggested, giving the example of stubbing your toe. If you stub your toe, but you are enjoying yourself, and life is going well, it hurts, but it's not overwhelming. If you stub your toe and you are depressed, say because you just lost your job. That stubbed toe is just 1 more thing happening to YOU—and it is going to feel worse.

The same occurs with animals, she said. Issues such as noise phobia that was never an issue in a dog, but now it's older, and it is a problem, could be linked to pain, and osteoarthritis can impair a dog's sleep and affect its mood, she said.

"We all recognize if a horse is showing the behavior of pawing, rolling, flank watching, circling, kicking at its abdomen—we recognize these as the motor outputs of the behavior of abdominal pain. So, we're then going to investigate for colic," Dr. Pearson said.

But what about a horse that is pronking or being aggressive or displaying unwanted behaviors. It can be a little harder to differentiate pain from behavior, she said, but she seems to err on the side of pain.

Dr. Pearson shared 3 main differential emotions that are associated with unwanted behaviors: pain, fear and frustration.

"The important point here is that all 3 of these activate the standardized physiological stress response, so you're going to get similar pathways occurring within the body, and then you're going to get a lot of similarities within facial expression, and other aspects, which can make it hard to work out which one it is," Dr. Pearson said.

She said that it is common to think that a mild level of pain yields a mild level of behavioral response, but that is not always necessarily true. "We have to remember that pain is an individual perception," she said. "The cases I see [are] often very similar to the cases that the sports veterinarians see, they often have very low-grade pathology. The difference is rather than just manifesting as poor performance, in my caseload, pain often manifests as more significant behavioral problems."

In trying to determine the primary cause of behavioral issues, the first step is to rule out any obvious pain and injury by conducting a clinical examination. A poor response to behavior modification is probably the most reliable indicator that pain or pathology is a significant underlying factor in these cases, she said.

Happy horses will cope with pain; stressed horses will not cope with pain, she explained.

"So, we start to think through the history of these cases, and it can take me an hour to take a history for these more complex cases," Dr. Pearson said. "If you've got an older horse, and it has a sudden onset of behavior, that's much more likely to be pathology, if nothing else has changed.

"If I've got a horse, it's needle shy but perfectly happy with everything else in life, then it's probably just needle shy.

"If I've got a horse, it's needle shy, but it also doesn't like to be clipped and does not like to be bathed, and there's other things going on there—maybe there's some skin disease going on."

When trying to manage either pain or behavior, an in-depth, systemic examination and investigation are warranted, Dr. Pearson she said.

Rule out the obvious causes of pain with a clinical examination and, perhaps an analgesic trial. Rule out obvious behavior issues. Does the horse have friends, is it able to have the freedom to move as it wishes, does it have access to ad-lib forage? Can you retrain an unwanted behavior?

She said she likes to put a camera in the stall and watch the animal at night. Remember these are prey animals, and are pretty darn good at hiding pain, but at night when its alone, you may see a problem, such as itching. And she records the entire night and watches it at a faster replay speed. In 2 videos the horses were trying to scratch and bite themselves. Itching, she reminded is not going to get better with an analgesic trial. When she added a steroid, the animals started to calm down, and she could address the unwanted behavior.

Trying to discern pain will not be a quick process, she warned. Often just taking a complete history can take an hour. **MeV**

ASK THE Infectious Disease Expert

This column, brought to you by Merck Animal Health, features insightful answers from leading minds.

"What's the latest equine herpesvirus information we need to communicate to clients?"

Equine herpesvirus (EHV) is a complex and significant challenge in equine veterinary medicine. Common misconceptions exist that complicate its management. With clear communication, veterinarians can help clients protect their horses.

One important aspect of educating clients is helping them overcome the misunderstanding that all equine herpesviruses are the same. In reality, there are several types: alphaherpesviruses (EHV-1 and EHV-4) and gammaherpesviruses (EHV-2 and EHV-5).

EXPLAINING THE RISK

EHV-1 and EHV-4 present the most common risk for respiratory infection, while EHV-1 presents occasional other signs such as abortion and neurologic disease. Emphasize that EHV-1 and 4 are highly contagious and may cause outbreaks in barns.

Clients should know that both EHV-1 and EHV-4 establish a chronic, persistent infection that goes into indefinite hibernation. Make sure clients understand that this means both viruses are capable of reactivating and returning to the respiratory tract to start a new round of infection and potential spread to other horses.

Don't overlook the gammaherpesviruses in your practice. Even though they rarely cause disease in adult horses, they are ever-present in the equine population. Infections with EHV-2 or EHV-5—as well as EHV-4—are usually detected in foals, yearlings and 2-year-olds, often causing respiratory tract disease and fever. They also may lead to secondary bacterial infections in that group of young horses.

ADVANCES IN DISEASE MANAGEMENT

Vaccination is typically targeted at EHV-1 or a combination of EHV-1 and EHV-4, and it is the most effective way to prevent infection. Remember that a highly infectious strain at a high dose can overrun a horse's existing immunity, so vaccines don't provide 100% protection, but can decrease severity of clinical signs as well as viremia.

Significant advances have allowed for earlier and more rapid detection of EHV-1 and EHV-4 infection. If you diagnose a patient with a herpesvirus, explain to clients that quarantine is crucial because of high contagion and virus shedding.

Also stress the importance of testing all in-contact horses to help avoid an outbreak. For in-contact horses, consider post-exposure prophylaxis with antivirals such as valacyclovir or ganciclovir, which is used less frequently due to its cost.

There's no doubt that equine herpesvirus presents a multifaceted challenge. By understanding the various virus types and taking the time to explain prevention and management tactics, veterinarians can help clients avoid the dangers.

3 KEY EHV-1 CLIENT EDUCATION POINTS

Sharing these succinct facts will give clients a strong basis of knowledge about the most significant equine herpesvirus.

1. WATCH FOR SIGNS

Keep an eye out for the appearance of sudden onset of clinical signs such as fever, swelling in limbs (pairs or all four), gait anomalies and recumbency. These could all indicate an ongoing EHV-1 infection. Isolate any horse showing these signs and start testing.

2. TEST IN-CONTACT HORSES

Appearance of clinical signs mentioned suggests an EHV-1 infection occurred seven to 10 days ago and may be ongoing. This means the horse may have been shedding the virus the entire time, exposing in-contact horses. Once EHV-1 infection is confirmed, all exposed and in-contact horses should be tested and isolated.

3. STAY VIGILANT YEAR-ROUND

Cases of EHV-1 are most likely to occur between November and April, and they are least likely in August; however, the period of vigilance has soft margins. Always watch for clinical 'red flags' and alert the veterinarian if any are observed. This allows for timely treatment, isolation and testing of exposed horses.

ABOUT THE AUTHOR

Lutz Goehring, DVM, MS, PhD, DACVIM (large animal), ECEIM (European College of Equine Internal Medicine), is the Warren Wright, Sr.—Lucille Wright Markey Endowed Chair in Equine Infectious Diseases at the University of Kentucky Gluck Equine Research Center. His research expertise is EHV-1, specifically its effects, transmission and epidemiology.

WANT TO ASK A QUESTION? EMAIL THE EDITOR.

Provide your clients with more quick facts about EHV-1 and EHV-4 with downloadable infographics from Merck Animal Health.

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Managing RECURRENT FOOT ABSCESSES *That Bug the Horse*

Foot abscesses that continue to drain or recur are a "troublesome thing," said **Craig Lesser,** DVM, CF, a podiatry specialist at Rood and Riddle Equine Hospital, in Lexington, Ky.

"The owners get really concerned by this," he said at a Burst Session presented at the 69th AAEP Annual Convention in San Diego. However, a closer look usually finds a solution to help the lesions resolve.

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By Marie Rosenthal, MS

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Image courtesy of Dr. Craig Lesser.

Maggot larvae used to debride the wound.

Often, the reason for the recurrence is because caregivers take the bandage off and turn the horse out in the mud before the foot has a chance to heal. It quickly becomes packed with mud, which traps bacteria and reinfects the foot.

"And then we're back to square 1 again. There's no question in my mind that is the most common reason [an abscess recurs]," he said, so he typically suggests owners consult a farrier after the abscess is opened to get a shoe or treatment pad on the foot to protect it.

If it truly is a recurrent lesion—not a result of turning the horse out too soon—go back, do a thorough examination of the foot, check the drainage and the amount of inflammation, look for other areas of swelling and take some radiographs.

Dr. Lesser tends not to take radiographs the first time he sees the horse for abscesses.

"My rule of thumb is that if you can't resolve an abscess in 3 days, I'll take an X-ray. That first day that I show up, I don't usually find a lot of value in taking an X-ray," because it is not going to change treatment, and most simple abscesses will heal within a couple of days.

"But by day 3, that's when I'm starting to worry that we might have some bone damage, and I need a little extra help to get this open," he said. He takes lateral and solar margin images to look at the entire surface of the coffin bone to see if there are changes that require a different, more aggressive approach.

The traditional way to treat infected coffin bones is to debride and treat regional perfusions with antibiotics, but Dr. Lesser explained, "I don't do those very often anymore."

Instead, he lets his little helpers do that. He has been using maggot larval therapy because "I'm using fewer antibiotics, and they're a lot faster at cleaning up these infections."

They do a great job at debridement, he admitted. If using larval therapy, it is important to consult a farrier to place a shoe and a treatment plate on the foot to help keep them in place, as well as to keep the foot off the ground.

If using larval therapy, consult a farrier to place a shoe and treatment plate on the foot to keep them in place.

"The nice part is it [the plate] stops the ground from touching the bottom of the foot so these access pockets don't get crushed over and over again. It continues to drain, and it keeps that area protected," he said.

Owners might be a little squeamish because they must change the bandages every other day, and the larvae do increase in size as they feed.

"But it's amazing how fast they clean out the infection. I'm using way fewer antibiotics, and everything's nicely debrided after we're done," Dr. Lesser said. **MeV**

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‘Nose Job’
Gives Young Filly New Lease on Life

By Natalie Pompilio

Often, when horses, especially those meant for sport, are borne with a severe deformity, they are euthanized, but the spark and determination of a Standardbred born in May with wry nose tugged at the heart strings of the owner and his daughter.

It was clear the filly would require a major medical intervention, and even if that went well, it was extremely unlikely she would live up to her potential as an equine athlete.

Shortly after her arrival into the world, the veterinarian who assisted in Coco Chanel 23’s foaling contacted **Matt Morrison** of Morrison Racing, to alert him about the filly’s extreme deformity.

Most owners would have put the foal down because her future was so dim, but Mr. Morrison didn’t want to euthanize the filly. His teenage daughter agreed, saying they had to at least give the foal a chance.

“There was a fight in her,” Mr. Morrison said. “She didn’t know she was abnormal. She just knew she needed to feed and was persistent. Without that fighting spirit, she probably wouldn’t have survived that first weekend.”

Her condition and attitude sparked a nick name: Wry Not.

Images courtesy of New Bolton Center

Bryant W. Craig, DVM

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#BeUnconditional

Imaging of the Wry nose (left). The filly after surgical correction (right).

Armed with her steely tenacity, Wry Not was sent to New Bolton Center at the University of Pennsylvania's School of Veterinary Medicine, where a multidisciplinary team were ready to give her that long-shot she needed to live a healthy life.

Wry nose, especially cases as severe as Wry Not's, are uncommon. The filly's surgical team, **Kyla Ortved**, DVM, PhD, DACVS, DACVSMR, and **Jose Garcia-Lopez**, VMD, DACVS, DACVSMR, said they've each seen about 3 cases, but none as severe as hers.

"It was a severe deviation, the most extreme that I'd ever seen," Dr. Garcia-Lopez said. "Where it was bent also made [surgery] more complicated."

Before undergoing the complex and technically demanding reconstructive procedure, the filly was first stabilized by an internal medicine team led by **Michelle Abraham**, BSc, BVMS, DACVIM.

To be considered a good surgical candidate, they had to ensure Wry Not was in good overall health, according to Dr. Abraham.

Because the filly struggled to nurse, one of the biggest concerns was the transfer of passive immunity: Foals must consume colostrum from their mare, beginning within 2 hours after birth. Another problem: An ultrasound of Wry Not's lungs showed mild changes consistent with aspiration pneumonia.

Dr. Abraham's team installed a feeding tube that provided Wry Not supplemental colostrum and hyperimmunized plasma. They also started the filly on antibiotics.

"Any local infection could have disastrous effects on the outcome," Dr. Abraham said. "Antibiotic therapy and continued nutritional support were important for [Wry Not] to overcome her initial challenges."

Before the surgeons could plot the best ways forward, the doctors took a scan of the filly's muzzle using New Bolton Center's OmniTom, a mobile CT scanner that delivers high-quality, point-of-care imaging. They also collected blood from the dam, Coco, for a transfusion that Wry Not would eventually need to make it through the procedure successfully.

Three hours would pass before the filly's life-changing and life-saving operation was finished. Post-surgery, Wry Not's care team was delighted to find the filly "bright," and able to nurse normally from Coco as well as nibble hay.

"A case like [Wry Not's] is very much a team effort," Dr. Ortved noted. "There's everyone from the NICU that admitted her and kept her alive, the anesthesiologist who handled this difficult case, the radiologist, the equine dentist and many other specialists. When there's an intense case like this, there's a huge care team, including nurses, staff, residents, interns and vet students."

Although the filly's nose will never be completely strait, she will be able to live a happy and healthy life. **MeV**

This story originally ran on the PennVet website. It has been edited for space and style. https://www.vet.upenn.edu/about/news-room/news-stories/news-story-detail/wry-nots-triumph-over-a-twisted-fate

CHECK OUT

See our Technician Update about another wry nose patient in the March 2023 issue of *Modern Equine Vet*.

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A New Way to 'Re-Cycle' Your Mare

By Paul Basilio

When a mare loses a fetus, it can take months to get her back into cycle, thanks to the enduring nature of endometrial cups.

Endometrial cups are crucial, as they produce the hormone equine chorionic gonadotropin (eCG), which sends signals to the ovary to produce secondary corpora lutea (CLs). The CLs produce immense amounts of progesterone, which can sustain the mare's pregnancy for approximately the first half of gestation.

"Endometrial cups can also be little buggers," said **Carleigh Fedorka**, DVM, PhD, assistant professor of equine reproductive physiology at Colorado State. "When the mare loses the fetus, those endometrial cups persist for their entire lifespan, regardless of embryo or fetal viability."

That means if the mare loses the pregnancy on day 30, those secondary CLs are still going to be producing lots of progesterone, which will keep the mare from cycling back.

Since up to 10% of pregnancies are lost in the first 60 days, that's a lot of waiting around for a lot of mares.

"We've tried a lot of things to hasten the degradation of these cups," Dr. Fedorka said during a Burst session at the 69th AAEP Annual Convention in San Diego. "We've tried surgery, ablation and chemical curettage with kerosene with either inconsistent or no success."

Settle for the Best

The idea of bringing mares back into cycle was put on the backburner until Dr. Fedorka's friend, theriogenologist **Maria Schnobrich**, VMD, DACT, called her one day about a mare with retained endometrial cups.

Dr. Schnobrich asked about Settle, a mycobacterium cell wall fraction (MCWF) immunostimulant used to treat equine endometritis caused by *Streptococcus zooepidemicus*.

Dr. Fedorka initially laughed at the suggestion, but after a little thought it made much more sense.

"Endometrial cups are naturally degraded at 150 days by lymphocytes," she explained. "We know that Settle can increase the production of a lot of cytokines that recruit the lymphocytes and help develop them into the type of lymphocytes that would be useful."

She added: "So after laughing at her, I said, 'Obviously, we need to study this.'"

They then set out to develop a protocol.

DIY Re-Cycling

First and foremost, a video endoscope is needed to visualize the endometrial cups and to inject them individually. Injection needles will be used to penetrate the epithelium of the endometrium and get the treatment into the stroma.

A video endoscope is needed to visualize the endometrial cups and to inject them individually.

For their protocol, 2 treatments are performed 7 days apart using 4 vials of Settle during each session.

You're also going to need 3 people: 1 person in the mare, 1 person driving the endoscope, and 1 person injecting the treatment solution.

The treatment solution includes 6 mL of Settle combined with 14 mL of lactated ringers solution.

"You have to visualize each endometrial cup, inject 1 mL of solution, and then find the next cup," Dr. Fedorka explained.

To test the protocol, her team brought in mares that had aborted at about 45 days' gestation.

"We brought them in for their hysteroscopy, and we injected the individual cups," she said. "If we had any treatment solution leftover, we injected it circumferentially around the endometrial cup line. Then we waited 7 days and redid the treatment."

Results showed consistent, reliably reduced eCG concentrations that were negligible by about day 28. In terms of return to cyclicity, 80% of the treated mares cycled back and came into heat about 24 days after treatment onset.

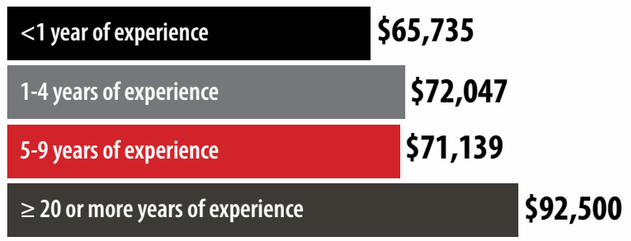
"We reduced the [return to cyclicity] time by 2 to 3 months," she added. "We were also lucky to have some incredible theriogenologists take this protocol into the field."

To date, the protocol has been performed on 17 mares. Of those 17, they have a history about 12.

"Of those 12, nine are currently pregnant and should be foaling in this upcoming season," she said, adding that "I hope you don't have a mare lose her pregnancy, but if you do, please try the protocol and report back. Let us know if you're successful, because we would love to get more data and hone the protocol." **MeV**

VET Stats

EQUINE VET: AVERAGE SALARY



Payscale, compensation management consultants (https://www.payscale.com)

ONLY A HANDFUL OF VETERINARY STUDENTS CHOOSE A CAREER IN EQUINE MEDICINE.

Of those, **1.3% go straight into private practice after graduation** with **4.5% pursuing an equine internship to further their training.**

Source: AVMA

IN 2023

The average salary for an equine veterinarian was

$71,955.*

*Payscale, compensation management consultants (https://www.payscale.com)

IN 2022

The median annual wage for all veterinarians was

$103,260.**

**The U.S. Bureau of Labor Statistics https://www.bls.gov/ooh/healthcare/veterinarians.htm

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