



Vet Pulse

From the Editor

Welcome to the inaugural issue of *Iowa State University Vet Pulse*. We developed this new publication to share best-case clinical examples and articles that will directly impact you and your work. We hope you'll find it timely and beneficial to your practice, from trusted partners at the Lloyd Veterinary Medical Center.

We look forward to your feedback and ideas for future content in addition to Q/A topics, cases, features, or other types of information to include in *Iowa State University Vet Pulse*. We also plan to regularly include an opportunity to earn Iowa CE credit (see bottom) when you answer questions on our website.

We appreciate your ongoing support, and look forward to the opportunity to continue to serve you, your clients and their animals.

If you would like to receive this electronically in the future, sign up for our eNewsletter version at vetmed.iastate.edu/VetPulse. Thank you!

Rodney S. Bagley, DVM, DACVIM
Managing Editor, Professor & Interim Associate Dean of Clinical Operations

Electronic Medical Records

Referring DVMs have access to the finalized medical records of patients referred to the Lloyd Veterinary Medical Center. You can review case summaries, discharge instructions, lab work and various reports online at your convenience. Sign up at rdvm.cvm.iastate.edu to request a referring veterinarian account for the Cyclone Veterinary Information System (CVIS). We regularly send a finalized case summary of your referred patient via fax or email. Send updates on your delivery preference to vmc-services@iastate.edu.

IMPORTANT INFORMATION FOR OUR REFERRING VETERINARIANS

FEATURE CASE:

Ocular Abnormality in a Cat

BY **Rachel Allbaugh, DVM, MS, DACVO**
Assistant Professor, Veterinary Ophthalmology

Patient: 9-year-old castrated male Persian cat

Presenting Complaint:

Discolored area on right eye that has been present for approximately 6 months

History: Intermittent treatment with eye drops attempted to control black ocular discharge that occasionally builds up, but no improvement noted with the discolored spot.

Clinical Observation:

See photo of right eye below.

>> Earn Iowa CE credit by answering case-related questions about the clinical diagnosis, treatment options and risks; and review a case commentary at vetmed.iastate.edu/VetPulse.



CE

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Visit vetmed.iastate.edu/VetPulse to answer questions on this case for CE credit. You can also subscribe to an electronic version of *Iowa State University Vet Pulse*.

Clinical Trial on Paralysis in Dogs

BY **Johnna Decker**

Dr. Nicholas Jeffery, a neurologist at the Lloyd Veterinary Medical Center at Iowa State, is actively engaged in a clinical research trial to discover a way to treat paralysis in dogs. Finding a cure to paralysis is not only a goal of Dr. Jeffery, but also his passion.

His focus as a neurosurgeon is to “test theories which will work on dogs and in the long-term, perhaps help people as well.” Through his clinical research trial, Dr. Jeffery hopes to find clients who are willing to commit to a six-month treatment period where he can work with patients that have suffered a spinal injury with paralysis and that have not recovered adequately.

The treatment Dr. Jeffery is using is designed to break down spinal scar tissue and allow nerves in the spinal cord to make new connections.

Dr. Jeffery is using a two-arm trial assessment for his patients, using a new intervention tested against control treatment; both used in conjunction with **physical therapy** to enhance recovery.

To qualify for the clinical trial, a dog must have been diagnosed with paralysis and weigh no more than forty-five pounds. With this trial, clients are asked to pay a \$100 entry fee at the beginning of the trial; but there are no further costs associated with the treatment.

For more information, or to refer a patient, please contact Dr. Jeffery at njeffery@iastate.edu.

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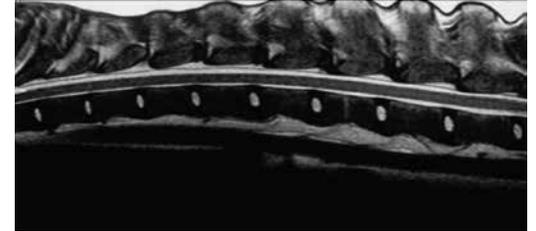
FEATURE TOPIC: Pelvic Limb Dysfunction in Dogs

BY **Rodney S. Bagley, DVM, DACVIM**
Professor & Interim Associate Dean of Clinical Operations

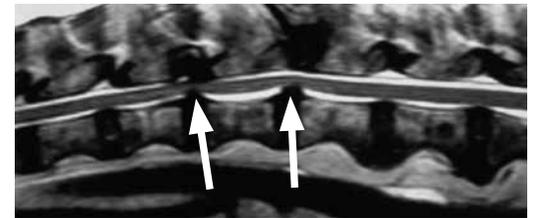


Q In older German shepherds, how can you differentiate among degenerative myelopathy and other diseases?

A Of the common diseases causing pelvic limb dysfunction in German shepherds, degenerative myelopathy (DM), type II intervertebral disk disease, hip dysplasia, and lumbosacral (LS) disease are commonly confused. Clinical signs are useful in separating these diseases. For example DM is not as common a disease as historically thought. Dogs with DM usually present with an upper motor neuron (UMN) or central controlling pathway paraparesis with insidious progression. The exception to this is that approximately 10% of dogs with DM can have decreased to absent patellar reflexes and DM also does not result in spinal pain unless there are concurrent disease processes present.



T2-Weighted sagittal MR image of the thoracolumbar spinal region in a normal dog



T2-Weighted sagittal MR image of the thoracolumbar spinal region in a dog with multiple protrusions of the intervertebral disks (arrows)

Hip dysplasia is an orthopedic condition. Therefore, conscious proprioceptive deficits and other spinal reflexes should be normal in these dogs. Rarely, the degree of degenerative joint disease around the coxofemoral joints will be so exuberant that the osteoproliferative process will entrap the sciatic nerve along its course. This may result in paresis and decreases in the withdrawal reflex (lower motor neuron (LMN) sign).

Dogs with **LS disease** usually are painful in the LS region upon direct palpation or manipulation. Obvious proprioception deficiencies are uncommon unless the LS disease is severe. The tail may become dysfunctional and varying degrees of urinary and fecal incontinence may occur. Urinary and fecal incontinence, comparatively, is not present in dogs with DM. If the sciatic nerves become affected due to the LS disease, the dog may become parietic with significant muscle atrophy of the pelvic limb muscles innervated by the sciatic nerve. The muscle atrophy is often most easily seen in the cranial tibial muscles. This LMN sciatic presentation is significantly different from the UMN clinical presentation associated with DM.

Intervertebral disk disease can result in both an UMN and a LMN clinical presentation, depending upon which disks are affected. Unfortunately, many middle-aged to older German shepherd dogs have degrees of intervertebral disk degeneration and protrusion. This problem can be primary, or may be concurrent with other diseases. For all conditions involving the spinal column, advanced imaging such as **computed tomography (CT)** and **magnetic resonance imaging (MRI)** are needed to most accurately identify the specific cause of the animal's neurologic dysfunction. As clinical signs can be overlapping and dogs can have more than one condition resulting in clinical deficiencies, all imaging abnormalities should be correlated with what is apparent upon clinical examination.

>> To submit a question email: VetPulse@iastate.edu

Facial Nerve Paralysis Across Species

BY **Cody Alcott, DVM, DACVIM (Large Animal), Clinician/Neurology Resident Equine Medicine**
Rachel Allbaugh, DVM, MS, DACVO, Assistant Professor Veterinary Ophthalmology
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Disease that involves the facial nerve (cranial nerve VII) is a common problem seen in clinical practice. CN VII supplies innervation to the muscles of facial expression, to the lacrimal and salivary glands, to the middle ear and the blood vessels of the head, and to the palate and the rostral two-thirds of the tongue. These latter two functions are not usually as clinically apparent or important.

As the facial nerve is responsible for innervation to the muscles of facial expression, astute observation of the animal's head and face may reveal abnormalities of symmetry and facial muscle movement. Animals with facial nerve disease often have abnormalities of position and movement of the lips, ears and eyelids.

Facial nerve motor function is most easily evaluated by first assessing the **palpebral reflex**. When the medial aspect of the palpebral fissure is touched (with a finger or other non-injurious instrument) the animal should blink rapidly (within milliseconds of the stimulus) and completely (the margins of the palpebral fissure should touch). The stimulus (i.e. finger touching the medial canthus) is sensed through the trigeminal nerve (CN V, ophthalmic branch) and the muscle contraction is elicited through the motor functions of CN VII resulting in contraction of the orbicularis oculi muscle. If the more lateral aspects of the periorbital region are touched, the afferent stimulus may be projected in the maxillary branch of CN V fibers.

Animals with an abnormality of CN VII function will not be able to close the palpebral fissure completely when this reflex is attempted. The menace response will also be decreased or absent; however, if the animal has only a facial nerve abnormality and no other ocular complications, the animal's vision should be normal. When testing the menace response, it may be noticed that the eye can be retracted in the orbit away from the menacing gesture suggesting the afferent components of this response are normal. Often, when the eye is retracted in the globe in this situation, the nictitating membrane will be prolapsed up and over the eye in a rapid movement. Similarly, when the palpebral area is touched, the animal may retract the eye but not be able to close the lids. The nictitating membrane will often be rapidly prolapsed concurrently.



Top to bottom: Facial nerve paralysis in a cow (right side), horse (left side) and dog (right side).

Ocular Complications from Facial Nerve Paralysis: Clinical Tips

- Don't forget to perform a complete eye exam to evaluate ocular status on presentation and at all recheck visits.
- Central corneal drying and subsequent exposure ulcers may also occur.
- A Schirmer Tear Test (STT) is necessary to measure aqueous tear production in facial nerve paralysis patients given the possibility of concurrent loss of parasympathetic stimulation to lacrimal glands.
- Fluorescein staining is imperative as corneal ulceration may occur due to environment trauma as the eyelids are unable to blink completely to protect the globe or keep foreign bodies from getting caught under the eyelids (see case pictures below).
- Any ulcer associated with facial nerve paralysis can rapidly become complicated and severe so aggressive therapy and frequent monitoring is key.



Cow (top photo) and horse (above) with facial nerve paralysis and corneal ulceration (Fluorescein staining).

>> To view additional facial nerve paralysis photos go to: vetmed.iastate.edu/VetPulse

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INSIDE THIS ISSUE:

1 Ocular Abnormality in a Cat

Review this case and answer questions on our website to earn Iowa CE credit

2 Pelvic Limb Dysfunction in Dogs

Learn how to differentiate among degenerative myelopathy and other diseases

3 Facial Nerve Paralysis Across Species

Learn how to assess and evaluate facial nerve paralysis

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The Pharmacy Dose Important Topics in Veterinary Pharmacy

BY Jake Vogel, PharmD, MBA

- **Modified Cyclosporine capsules** are available generically in 25mg and 100mg capsules under the human labeled brand name Gengraf®.
 - > Micro Emulsion Cyclosporine capsules are available generically in 25mg and 100mg capsules under the human labeled brand name Neoral®.
 - > Cyclosporine capsules are generic human labeled brand name Sandimmune and are **not modified** and are **not interchangeable** with Gengraf® or Neoral®.
 - > Modified Cyclosporine capsules have greater bioavailability (absorption) than regular Cyclosporine capsules.
 - > Use caution when dosing these products. Dose according to package inserts or clinical studies of specific product being used.
 - The recently released brand name **Recuvyra™** (generic fentanyl transdermal solution) should only be administered one time to an individual patient and **not** be used as a repeat treatment.
 - Keep a perpetual **inventory of ALL controlled substances** inventoried in your practice at all times and maintain documentation of all in-office administrations of controlled substances.
 - When prescribing compounded medications, it is good practice to **request product testing documentation from the compounding pharmacy** you are using, specifically sterile products in regards to the products sterility and potency.
 - **For office/hospital use only compounded medications** should be administered with patient specific prescriptions relayed back to the compounding pharmacy.
- >> **For additional information please contact the pharmacy at 515 294-2427.**

