

METROPOLITAN VETERINARY ASSOCIATES NEWSLETTER

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MVA TURNS 35 THIS MONTH - THANK YOU!

Dear Friends and Colleagues,

A little over 35 years ago I was sitting on Jerry Northington's porch with Jerry, Lynne Maletz, and, if my memory serves me correctly, some bourbon. We were discussing how we were going to open up a multi-specialty practice in the Philly suburbs that was conveniently located. Since there were no cell phones or internet, we had to rely on landlines to help people find us, so we decided to look near where the PA turnpike, 202, 76, and 422 converged. Thus, without any marketing geniuses or Google, we decided on Trooper Road.

Over those 35 years the practice has grown enormously (and moved around the corner) with the help and support of all of you (or maybe your mothers and fathers at this point). Jerry retired a few years ago and I hope he is still on a porch somewhere happily whistling. Lynne left after a few years to start her own practice, and then unfortunately died at a very young age. For those of you who went to Penn, you may recall that when you enter second year, you are assigned a new first year student to help them adjust to vet school. I was assigned Lynne in 1977, so that's how far back we went. I could always rely on Lynne to make me laugh, under almost any circumstances. We met Jerry when he was one of our teachers in Neurology and joined him in practice a few years later while we were working on starting MVA.

After Lynne left, I learned about a young surgeon named Jon Nannos and convinced him to join us over a Labor Day weekend in the early 90's. He convinced us that we needed to be open 24 hours with an emergency service and the practice just kept growing after that. We all have Jon to thank for that and many other ideas. Over the years, Lori Cabell joined us and then went on to retire. Lori was, and still is, loved by everyone. John DeBiasio joined Jon and I a few years ago. Along with many other things, he taught me that computers can do a lot! Even more than I care to know. The practice has flourished under his leadership and will continue to do so in the years ahead. As business partners go, I couldn't have asked for anyone better than Jon and John. That brings you up to date.

Our website will introduce you to the rest of our fantastic talented doctors! A huge thank you is due to the managers, nurses and all of the support staff that have spent time with us over the years. MVA would not be MVA without them. A special thank you is due to our hospital administrator Stacey Connell. She is a miracle worker! There are so many more stories and people to talk about but maybe someday, when we can all see each other again, we can catch up. In the meantime, I can't thank you enough (as well as the people before you) for supporting our practice and introducing us to your clients. They've been an interesting bunch, and some have quite a few stories as well.

Sincerely,

James F. Dougherty *MS, VMD (Internal Medicine) | Founder*



Dr. James Dougherty

INTRODUCING NEW DOCTORS



STEPHANIE KREIN

Anesthesia, DVM, DACVAA

Dr. Stephanie Krein was born in the Pacific Northwest in Seattle, WA but has lived all over the United States including the Southeast, Midwest, West, and Northwest.

Dr. Krein attended Miami University (Ohio) and majored in Exercise Science. She graduated from the University of Illinois School of Veterinary Medicine in 2007. She then completed a rotating internship in Chicago at VCA Berwyn and Aurora in 2008 and spent the next two years practicing emergency medicine at Cape Cod Veterinary Specialists located in Buzzards Bay, MA. It was during these two years that she realized she had a love for anesthesia and pharmacology. Dr. Krein completed a residency in anesthesia and analgesia at Tufts University in 2013.

She began her career as an anesthesiologist in 2013 as a clinical lecturer at the University of Pennsylvania where she spent her time both teaching veterinary students and running the clinic floor. In 2015 she made the move up to Boston to work at the Angell Animal Medical Center for over 6 years. Dr. Krein joined MVA in August 2021.

Although she enjoys most aspects of anesthesia, her main interests are in critical care and in early and enhanced recovery from anesthesia.

In her off time she enjoys spending time with friends, enjoying good food and drinks, taking my golden retriever to the trails, and doing anything on the water.



ALEXANDER SAVER

Internal Medicine, BVSc (Hons), DACVIM (SAIM)

Dr. Alexander Saver is originally from Brisbane, Australia. He gained his Bachelor of Veterinary Science in 2016 from the University of Queensland, where he graduated as valedictorian. He completed an internship at the University of Minnesota in 2018, and then went onto a three-year residency in Internal Medicine at the University of Wisconsin-Madison between 2018-2021. During his residency, Dr. Saver was nominated as 'Resident of the Year' by the graduating DVM class of 2020-2021. Shortly after completing his residency, Dr. Saver became board-certified by the American College of Veterinary Internal Medicine.

Dr. Saver enjoys all aspects of internal medicine but has a special interest in gastroenterology and infectious disease. Outside of the hospital, Dr. Saver enjoys running, discovering restaurants & live music, and (most recently) bouldering. He has moved to Philly with his partner and their magnificent orange cat, George.

INTERVERTEBRAL DISC DISEASE IN DOGS

Daniella Vansteenkiste | BVetMed, MS, DACVIM (Neurology)

BACKGROUND

Intervertebral disc disease (IVDD) is a broad term that includes many conditions that affect the intervertebral disc. The intervertebral disc plays a key role in stability of the vertebral column. It consists of two layers, an outer layer called the annulus fibrosis and a center core, the nucleus pulposus. The annulus is thinnest at the dorsal aspect, just ventral to the spinal cord. The nucleus pulposus has a high water content in young animals which over time transforms to fibrocartilage. Intervertebral disc degeneration is an aging process that is dictated by genetics and can be accelerated by strain and/or trauma.

Type I IVDD is also known as a disc extrusion. A disc extrusion involves the herniation of degenerate, calcified nucleus pulposus through all layers of the ruptured annulus fibrosis into the vertebral canal secondary to chondroid metaplasia. Chondrodystrophic breeds are predisposed to type I disc herniations due to an early onset of dehydration and calcification of the nucleus pulposus. In these breeds, changes can be seen from 1 year of age. Non-chondrodystrophic breeds can also suffer from type I disc herniations but typically later in life.

Type II IVDD, also known as a disc protrusion, is more common in older non-chondrodystrophic breeds and involves dorsal displacement of the annulus fibrosis. This is secondary to fibroid metaplasia which results in progressive spinal cord compression. Mild, slowly progressive neurologic deficits are most common with this type of disc herniation.

A Type III disc herniation was not part of the original Hansen classification, however with advances in diagnostic imaging, a third subset of disc herniations has been identified. It is more commonly known as an acute non-compressive nucleus pulposus extrusion (ANNPE). These injuries are typically low volume/high velocity and occur secondary to an extrusion of non-degenerated nucleus pulposus which results in spinal cord contusion with minimal spinal cord compression. This discussion will focus on acute intervertebral disc extrusions.

CLINICAL SIGNS

The most common sign associated with IVDD is pain localized to either the back or the neck. Depending upon the severity of the injury, clinical signs can range from pain alone to complete paralysis. Urinary incontinence may



also be seen with disc herniations of the thoracolumbar spine. The location of the lesion will dictate which limbs are affected and highlights the importance of a complete neurologic exam. A type I disc extrusion, typically results in severe neurological deficits, whereas a type II disc protrusion more commonly results in slowly progressive neurologic deficits.

The clinical presentation is very important as the severity of neurologic deficits is a simple and reliable prognostic indicator. Many scales exist to classify patients and the severity of their neurologic deficits; however, the Modified Frankel score is used most commonly (*Table 1; See page 2*).



VIRTUAL SUPPORT GROUP

A resource for your clients — our pet loss support group meets once or twice a month. Meetings begin at 7:00 pm and end at 8:30 pm. It is not necessary to RSVP, although, if you would like to please contact 610-666-1050.

For questions or further information please call 610-666-1050 or e-mail us at info@metro-vet.com.

Assessing nociception is very important in any animal which has lost motor function due to prognostic implications. Superficial nociception is not considered reliable and therefore deep nociception should always be tested. Ideally this should be done in a calm animal as anxiety can make the results difficult to interpret. The animal may lay in whichever position it is most comfortable. A noxious stimulus is applied to the digit using the handles of either hemostats or needle drivers. With initial gentle pressure retraction of the limb may be seen (the withdrawal reflex). It is important to understand that this is not related to nociception. Pressure should be increased until there is a response to the stimulus such as vocalization, trying to move away, or looking

TABLE 1: MODIFIED FRANKEL SCORE

Grade	Description
5	Normal gait with paraspinal hyperesthesia
4	Ambulatory para/tetraparesis (ataxia)
3	Non-ambulatory para/tetraparesis
2	Para/tetraplegia with intact nociception
1	Para/tetraplegia with loss of superficial nociception
0	Para/tetraplegia with loss of deep nociception

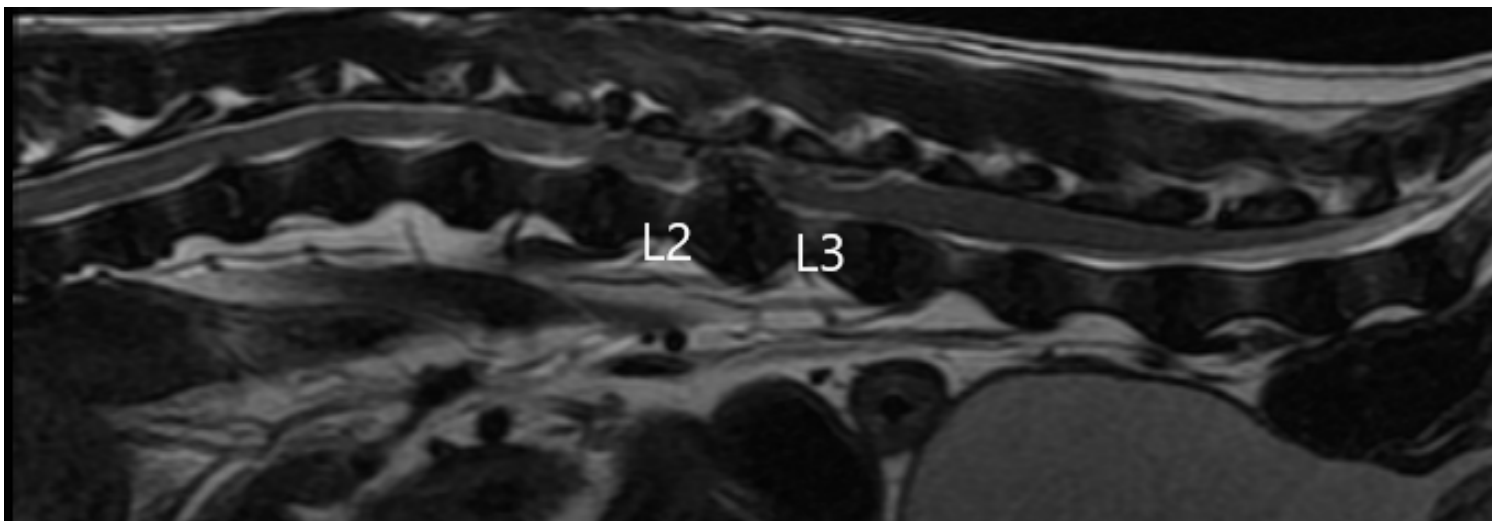
around. Reduced sensation may result in a change in breathing pattern and or dilated pupils. This test may need to be repeated several times to ensure the response seen is related to the noxious stimuli. Any response indicates that nociception is present. Testing of the lateral and medial toe is recommended.

in loss of anal tone, a distended abdomen, paralysis of the thoracic limbs and respiratory failure. There is no treatment for this condition and euthanasia is typically recommended.

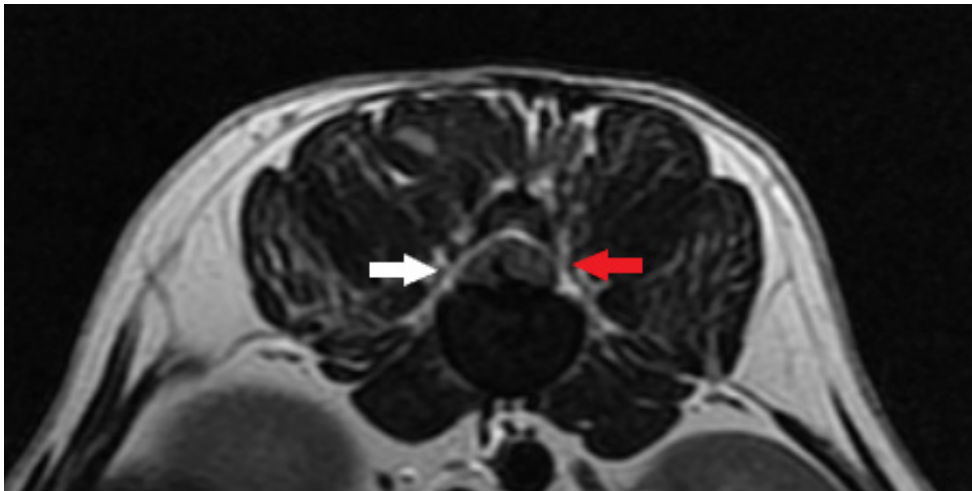
DIAGNOSIS

Progressive ascending descending myelomalacia is most common in dogs that have experienced a sudden loss in motor function with absent nociception secondary to a disc extrusion. The frequency ranges from 10-20% of cases. Myelomalacia involves softening of the spinal cord (necrosis) and is characterized by hemorrhage within the spinal cord. Clinical signs involve lower motor neuron signs in the pelvic limbs with an advancing cutaneous trunci reflex. Eventually myelomalacia will result

Diagnosis of IVDD has evolved markedly over time. IVDD may be strongly suspected based off of clinical signs, especially in predisposed breeds, but diagnostic imaging is necessary for diagnosis. Screening radiographs may reveal calcified disc material or a narrowed intervertebral disc space with a disc extrusion, however there is a poor correlation between mineralized disc in situ and the actual location of a herniated disc. In dogs with disc protrusions, non-specific signs such as vertebral endplate sclerosis or spondylosis



A T2-weighted sagittal image of the lumbar spine showing an acute L2-L3 intervertebral disc extrusion.



A T2- weighted transverse image at the level of L2. The white arrow points to extruded disc material and the red arrow points to the compressed spinal cord.

“ There are two methods of treatment for an intervertebral disc herniation: medical or surgical therapy.

deformans may be seen. Definitive diagnosis involves advanced imaging such as computed tomography (CT), CT- myelography and/or MRI. MRI is more commonly used when available due to improved soft tissue visualization (spinal cord and intervertebral discs). MRI is also able to distinguish between other differentials such as ANNPE and or a fibrocartilaginous emboli (FCE).

TREATMENT AND PROGNOSIS

There are two methods of treatment for an intervertebral disc herniation: medical or surgical therapy. Medical therapy may be recommended when neurological deficits are mild or non-existent and not progressive. This strategy involves 4 weeks of strict activity restriction in addition to anti-inflammatory and pain medication. Medical strategies typically used at MVA include an NSAID, Gabapentin and a muscle relaxant (valium or methacarbamol). Trazodone is also commonly used to facilitate strict rest as this is key for a successful response

to medical management. In cases of severe discomfort, other options include pregabalin, tramadol and/ or amantadine. The prognosis with medical management depends on the degree of patient discomfort and neurological deficits prior to therapy. Some patients that are still able to walk (~70%) improve with medication and rest, while others not only may not improve, but may actually worsen with time. Surgical treatment is recommended if neurological deficits are present/worsening or if pain is affecting a patient's quality of life. Surgery in the thoracolumbar spine is typically a hemilaminectomy or a dorsal laminectomy whereas in the cervical spine a ventral slot is the most common surgical approach. The prognosis with surgical treatment for an acute intervertebral disc extrusion is good; there is an 85-90% chance for relief of pain and improved neurological function in the weeks to months following surgery barring complications related to surgery and anesthesia (Table 2; See page 4).

With either medical or surgical

SPECIALIZED SERVICES

ANESTHESIA

Stephanie Krein, DVM, DACVAA

BEHAVIOR

Hagar Hauser, DVM
Jacqueline Wilhelmy, MS, VMD, DACVB, CCBC-KA

CARDIOLOGY

Marc Kraus, DVM, DACVIM (Cardiology)
Michael Miller, MS, VMD, ABVP
Megan Poad, VMD, DACVIM (Cardiology)
Risa Roland, DVM, DACVIM (Cardiology)

DENTISTRY

Corinne Durand, DVM, DAVDC

DERMATOLOGY

Katherine Backel, DVM, DACVD
Karen B. Farver, DVM, DACVD

EMERGENCY AND CRITICAL CARE

James Buckman, PhD, VMD
Allison Buysse, VMD
Jason Chamberlin, VMD
Kathleen Crossman, DVM
Cierra French, DVM
Robert Gaunt, VMD
Jennifer McGough, VMD
Rachel Morgan, DVM, DACVECC
Katie Slade, VMD
Marisa Suvannavejh, VMD
Katrina Tumielewicz, DVM, DACVECC
Sarah Wilson, DVM

INTERNAL MEDICINE

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Tabitha A. Hutton, DVM, MTR, DACVIM (SAIM)
Leslie A. Kuczynski, VMD, DACVIM
Alexander Saver, BVSc, DACVIM (SAIM)

NEUROLOGY

Lisa Lipitz, VMD, DACVIM (Neurology)
Daniella Vansteenkiste, BVetMed, MS, DACVIM (Neurology)

MEDICAL ONCOLOGY

Suzanne Rau, DVM, DACVIM (Oncology)

OPHTHALMOLOGY

Amanda Corr, VMD, DACVO
Chloe Spertus, DVM, DACVO

RADIOLOGY

Robert McLear, VMD, DACVR
Lisa Suslak, VMD, DACVR

SURGERY

Kendra Hearon, VMD, DACVS-SA
ACVS Fellow, Surgical Oncology
A. Jon Nannos, DVM
Jacqui Niles, BVETMED, SAS, DACVS
Catherine Popovitch, DVM, DACVS, DECVS
Timothy M. Schwab, VMD, DACVS-SA
Rebecca Wolf, VMD, DACVS-SA

TABLE 2

Grade	Recovery with conservative management (%)	Recovery with surgical management (%)
4 (ambulatory paraparetic)	72.5	98.4
3 (non-ambulatory paraparetic)	79.8	93
2 (paraplegic with intact nociception)	56	93
0 & 1 (paraplegic with absent nociception)	22.4	61

Note: Data extrapolated from Olby NJ, da Costa RC, Levine JM, Stein VM. Prognostic Factors in Canine Acute Intervertebral Disc Disease. *Front Vet Sci.* 2020;7:913.

treatment, it is estimated that there is a 10-15% chance of developing future disc related issues once patients of breeds predisposed to degenerative disc disease have ruptured one disc.

TREATMENT EXPECTATIONS FOR OWNERS

For patients undergoing surgery, a typical hospital stay involves 2-3 days. Pain control is imperative in the first 24 hours after surgery. Continence is also closely monitored post-operatively to ensure our patients can urinate prior to discharge or bladder expression may be taught to the owner during a

dedicated nurse discharge. Most dogs will regain control of their bladder function as motor function returns to the pelvic limbs. In more severely affected patients long term bladder expression may be necessary. Medications to relax the internal and external sphincter such as prazosin or valium may be prescribed to facilitate management of the upper motor neuron bladder. Strict rest is a key component for any pet with suspected intervertebral disc disease whether treated conservatively or surgically. This is very important for owners to understand to ensure a successful recovery. Additional therapies such as physical therapy

may also help accelerate their recovery (water treadmill) and can be used to aid in pain management for certain patients (laser therapy and acupuncture). Physical therapy can be initiated early on in post-operative patients. In patients treated conservatively, I recommend waiting at least 2 weeks or until the pet is comfortable. 🐾

REFERENCES

1. Gwendolyn J Levine et al., "Description and Repeatability of a Newly Developed Spinal Cord Injury Scale for Dogs.," *Preventive Veterinary Medicine* 89, no. 1 (May 2009): 121–27, doi:10.1016/j.prevetmed.2009.02.016.
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4. Moore SA, Tipold A, Olby NJ, Stein V, Granger N, Canine Spinal Cord Injury Consortium (CANSORT SCI). Current Approaches to the Management of Acute Thoracolumbar Disc Extrusion in Dogs. *Front Vet Sci.* 2020;7:610.



A T12-T13 hemilaminectomy following successful decompression of the spinal cord.