

FOUR LEG NEWS

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Welcome to part 2 of the “YOU edition”. These were the other half of the submissions for the ‘Nerd Contest’ from April. You guys are doing some great work!! I hope everyone enjoys these cases and aha moments! Please feel free to send me your ideas about what you might like to see included in future videos, papers, newsletters, etc!

Cheers to your success!

Laurie Edge-Hughes

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Fracture Management

Dr. Rita McKay, DVM, CVA, CoAC, CCRT,
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I would like to tell you about an older Yorkie (12 years old) that was hit by a car on December 17, 2012. He experienced an oblique mid-shaft tibial/fibular fracture. A splint was applied by the local emergency clinic and he was sent home with Tramadol and Metacam. A surgical consult was declined at the time.



Fracture Management (con't)



On February 22, 2013, (which was 9 ½ weeks later), he was re-

radiographed. The fracture healing was delayed and a significant defect between fragments remained. The attending veterinarian recommended either a KE apparatus with a bone graft or amputation. For profound personal reasons, the caregiver had declined invasive surgical options and had requested any other options. Aware that there was an inverse relationship between time passing and the chances of salvaging the leg, she wanted to try anything possible for another month or so before making a decision. It was at this point that I was introduced to the dog's caregiver (I always seem to be the last option☺).

So there it was, in FourLeg.com, on 12 May, 2012. An article on "Fracture Management". We were able to do the following:

1. PEMF bed (by Respond Systems)- 1 hour (or more) twice daily at 1.5 Hz.
2. Laser (Respond 2400XL) high power head, 4 J/cm² around circumference of the fracture site and 3 J/cm² at L4-LS region, three times per week (splint was removed/replaced each time).

3. Symphytum officinalis herb from Natural Path Veterinary Herbs.

On April 24, 2013 (5 weeks from when the above modalities were instituted), radiographs were taken again. The bridging between fragment segments was significantly greater over the last 5 weeks



relative to the initial 9 ½ weeks. We have downgraded to a padded bandage and will be progressing to a rehabilitation program.

The "aha" moment came when the most recent radiographs were taken. The significant changes between the periods of time between the initial 9 ½ weeks and the subsequent 5 weeks was enough to convince me of the power of some of the modalities and the difference that they can make. I am not sure which of the variables had the most profound effect but I do know that something made a huge difference. The reality is that the dog will not be having his leg amputated. While the fracture is obviously not healed in an ideal manner, we were able to salvage the leg and can now proceed to the next phase of rehabilitation. The implications for future fracture management and bone healing, including postop TPLO's, is profound. Thank you Laurie for being there for some great advice and moral support!

Thinking outside the box!

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Pipsqueak is a 4 yo NM Peek a Poo who received a cranial cruciate repair on his right hind leg on 3/8/13. He presented to the office for canine rehab on 3/19 upon referral due to his unwillingness to put his right hind leg (RHL) down in a weight bearing position. Pipsqueak was very functional at home, able to go up/down steps, jump up onto furniture, perform all transfers and gait on all surfaces at a fast trot, carrying his RHL in a highly flexed position, or by shifting all his weight onto his fronts and performing a "head stand" to get around.

Tenderness was noted over bicipital tendon at insertion, paraspinals T10-13 due to off loading. No cranial drawer or tenderness noted on (L) stifle. No hip laxity was found (bilaterally). Flexibility: (R) hamstring 45% Range, (R) Sartorius 70% Range. Surgical scar incision tight and non-mobile over joint line. Decreased muscle bulk of the hamstrings (R)HL.

Treatment:

Passive stretches to hamstrings, Sartorius 30 sec x 8 reps; Joint Compressions to (R) stifle, tarsus and hip joints; Class 3b LASER to bilateral stifles, and to paraspinals (each side), at 5 Joules/cm²; Grade III joint compressions to spine; Scrunchie placed on (L)HL for treatment but Pipsqueak refused to place (R)HL on the ground. A plastic bag was wrapped around the left hind limb (LHL), but the patient still refused to place (R)HL on the ground.

- 1) 3 leg stand, lifting (L)HL from the ground. 20 seconds x 5 reps with weight shifted

from the FLs to the HLs. Good muscular contraction of the hams, quads with weight bearing.

- 2) Cookies to the (L) HL with patient placing (R)paw on the floor with weight shifts x 8 reps, following treats.
- 3) Cavaletti poles placed at 4" heights with patient placing bilateral hind limbs [B]HL on the ground.
- 4) Home exercise program given to the owner, who demonstrated understanding and ability to perform for exercise #1 and #2, plus hamstring stretches and joint compressions.

Assessment: Patient demonstrated ability to weight bear on (R)HL during treatment, but due to restricted ROM of the (R)stifle joint and weakness, muscles fatigued quickly, and stride length was shortened. Owner educated in need to continue with HEP daily, with emphasis on stretches.

Short Term Goals in 4 weeks:

- 1) Patient will be able to weight bear (WB) on (R)HL 70% of the time with gait on level surfaces and transfer activities, without discomfort or pain.
- 2) Patient will be able to stand to eat with all four HLs in WB, without holding (R)HL in flexed position 50% of the time.

- 3) Caregiver will be independent with home program and perform on a daily routine. Caregiver to contact CCRT with concerns/questions.

Long Term Goals in 8 weeks:

- 1) Patient will demonstrate WB on (R)HL, 100% of the time with gait and transfer activities, without demonstrating carrying of (R)HL in a flexed position.
- 2) Patient will be able to demonstrate going up/down 3 steps with proper use of (R)HL without need of owners to carry Pipsqueak into the home.
- 3) Patient will be able to ambulate up/down hills with proper weight bearing on Bilateral (B) HLs without discomfort or pain, without carrying of (R)HL.
- 4) Patient will demonstrate an equal stride length (B)HLs with all gait activities.
- 5) Patient will demonstrate equal weight bearing on (B)HLs and decrease risk of future CCLR of the (L) stifle.

Plan: As per patient request, patient to be seen again in 2 weeks. If patient is not progressing over the next two weeks, demonstrating increased weight bearing in the (R)HL, caregiver is to contact CCRT and a visit is to be made at a sooner date.

At the two-week visit: Patient presented carrying hind limb, hopping on 3 legs into office. Patient ambulated around office, carrying hind leg before treatment. Passive stretching to hamstrings and quad RHL 30 sec x 5 reps. Scar massage to incision site with scar having little mobility across joint line. Joint compressions to stifle and tarsus. LASER to stifle area. Scrunchie placed on LHL – therapeutic exercises included: 1) cross leg stand x 4 reps with Pipsqueak able to hold > 40 sec. 2) Fronts up on box, reaching into spinal

extension for treat x 1 min for 3 reps) tight circles with affected leg on the inside. Patient able to demonstrate weight bearing on all above exercises, and throughout exercises. Cavaletti poles x 8 at 4 inches high with patient demonstrating WB on BHLs. Patient did bunny hop over the poles, but was weight bearing on both HLs during exercise. Gait after treatment: patient demonstrated WBing on BHLs 60% of the time with walking gait. When gait velocity increased to a trot, patient carried RHL. Gait down 4 steps with patient demonstrating touch down WBing on RHL.

Assessment: Great progress today with patient demonstrating the ability and willingness to WB on RHL after PT treatment. Therapeutic exercise upgraded with the above exercises given to caregiver who was able to perform and stated her understanding. Next visit in two weeks per caregiver request.

Third visit: Caregiver canceled her two week appointment, but called later in the week, stating that she had some personal issues that arose in the past two weeks and was able to work with Pipsqueak only on 2 occasions during the past two weeks and that he had again, began carrying his leg refusing to weight bear. Two home visits made to see Pipsqueak that week. Patient presented again with very tight hamstring, Sartorius, and quads. Paraspinals very reactive at T10-11 due to off loading to the front. LASER, ROM, joint compressions and above therapeutic exercise performed. Patient was able to perform activities and weight bearing on RHL if paw was kept in weight bearing. No tenderness noted to R stifle with palpation. Pipsqueak demonstrated weight bearing on both hind paws 40% of the time after treatment. Caregiver stated that she would perform HEP daily and see therapist in 1 week.

Recent visit: Pipsqueak presented carrying his right leg when he jumped down from the car. Walking up the hill to the office, he bore weight on the right hind 60% of the time. Upon examination, his right hamstrings, quads and Sartorius were within normal limits (WNL). Scar tissue mobile and not bound down. The Caregiver had worked daily with Pipsqueak, but was still very frustrated that he preferred to carry his RHL with gait at times, or would perform a head stand with gait activities. Therapeutic exercise was performed with Pipsqueak able to tolerate all weight bearing activities, but off loaded the right hind limb when not forced to keep it down. Scrunchies, plastic bags, and noxious stimulus used to left hind paw with Pipsqueak able to perform gait on the front legs only and lift both rear. When Pipsqueak urinated, he did so full weight bearing on the left hind limb. The impaired gait seemed to be more so due to habit than due to a physical dysfunction.

(So, something that Laurie has said time after time.....the equipment doesn't have to be fancy, you can think outside the box and come up with whatever you think might work). A harness was placed on Pipsqueak and he was lead outside to a

near pasture that had free ranged chickens and young goats. Upon permission from the caregiver, Pipsqueak was lead into the pasture. He immediately became excited at the thought of chasing chickens and goats, lunged forward on the harness, and with some resistance applied, gaited through the field full weight bearing on both hind limbs digging in with full force. Pipsqueak demonstrated proper gait sequencing 90% of the time with weight bearing on both hind limbs during his 8 -minute romp in the field. In rest, he would off load the right hind limb, but not carry it high and tucked under. Once taken out of the field, he ambulated at a trot, with proper gait sequence 90' down a hill and to the car, jumping up into the car with use of BHL.

A lot of Pipsqueak's gait abnormality is due to habit. No tenderness noted in the stifle or pelvic/ hip area. When encouraged and determined/excited, patient does bear full weight on the (R)hind paw. ROM normal in the hind limbs. Caregiver encouraged to continue working with Pipsqueak, using the harness and lead strap for walks sideways (right hind limb on upside of hill) along the hill, and on gravel ground.

Purchase of goats and chickens optional.

Case Study Aha Moment!

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'Max' (name has been changed) is a 9 year old golden retriever mix that developed pelvic limb weakness. He was evaluated by a surgeon and was diagnosed with bilateral hip dysplasia. He was started on carprofen for inflammation and pain. Rehab was recommended however Max worsened

before I even got to see him. On initial exam Max would not stand or walk without assistance but once up and moving was able to walk with very little assistance. He had moderate bilateral pelvic limb muscle atrophy as well as some T-L and L-S pain.

He was also painful with PROM of the hips and with palpation of the hip muscles. He had CP deficits. He was overweight with a BCS of 4/5. We treated him with laser and acupuncture but unfortunately he worsened over the next 1-2 weeks to the point of paresis - Max was not able to maintain a standing position and was not able to walk

even with assistance. CPs were absent but he still had motor function. Bloodwork revealed a low RMSF titer; all other tick titers were negative.

Chem/CBC/Electrolytes/ACTH stim were all wnl. His thyroid levels were low. He was started on doxycycline and thyroid supplement. The owners took Max for an abdominal ultrasound and MRI of the spine.

MRI revealed multiple discs with degenerative changes however there was no compression of the spinal cord.

Incidentally MRI found a splenic mass which was not detected on the initial ultrasound. He was re-ultrasounded and an FNA of the splenic mass was obtained. The results were indicative of a benign tumor however there were increased numbers of plasma cells and the neurologist and internal medicine specialists were convinced he had cancer with paraneoplastic syndrome. Splenectomy was recommended. (Side note - these owners recently lost a golden retriever to splenic hemangiosarcoma. I was the ER doctor on that case and did the splenectomy on that dog. He survived 3 months post-op. So these owners were devastated when they heard this news.)

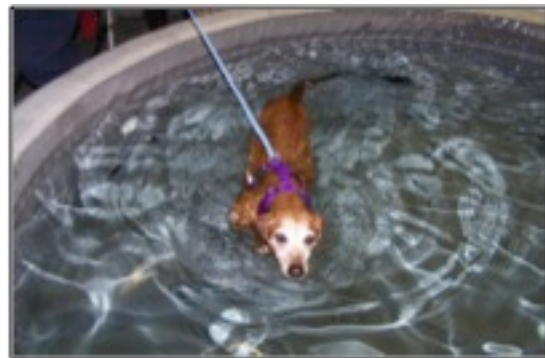
Despite that side note the owners decided to ignore that diagnosis and allowed me to treat him conservatively with rehab. He was started on gabapentin and methocarbamol in addition to the carprofen. We treated him with acupuncture (both dry needles and electroacupuncture), aquapuncture, Adequan, class 4 laser, UWT, therapeutic exercise and weight loss. He slowly improved. During this phase I was watching one of your neuro videos and you cited a JAVMA study that showed ~70% of dogs with neurologic signs did not have compression of the spinal cord on MRI.

That was my AHA moment when I knew he must have IVDD and was exhibiting neuro signs secondary to this. I had been treating him with the fear of him never improving because the specialists were convinced he had cancer. But because of your video I knew I could now "fix" him. I gave these owners a 9 month recovery goal however in 3-4 months he was actually running (away from the owners when they wanted to catch him - he's very stubborn). Thank you for making this case crystal clear for me! The owners are thrilled with his progress!!

Helpful Advice!

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In response to the recent blog inquiry and answer regarding a clinic that does not (yet) have an underwater treadmill, I'd like to offer a much lower cost and versatile option. When starting out 12 years ago, I purchased a Softub – a foam hot tub with a flat bottom. It runs on 110 V so doesn't require special wiring, can be moved by one person when it's empty, and has been running 24/7 for since I bought it with no major mechanical problems! The tub is 6' across, 32" deep



and holds about 300 gallons of water. The tub I purchased was a demo model from a home show, so the dealer was happy to sell it at a discount (about \$1,000) rather than transporting it back to their main facility two states away. I have seen used units advertised for sale recently for \$300 -500.

The vinyl covering does hold up to dogs' toenails, and the filter handles the dog hair without complaint as long as I also skim off floating hair with a net.

Just standing in the water is helpful for arthritic or deconditioned dogs, as the buoyancy allows them to stand longer with less discomfort and effort, and they seem to enjoy the warm water (usually at 92 deg.). Medium dogs (i.e. Australian shepherds) can typically stand on the 6" high platform step, and I add a Rubbermaid box with lid for smaller dogs. Larger dogs (i.e. Labradors) are usually stand shoulder/hip deep in the water on the floor of the tub.

While standing, I can place their front feet up on the platform step to facilitate weight bearing on the hind limbs, work on rocking front/back and side/side. Massage and range of motion to limbs can also be done in the water, and I find this works especially well for extending stiff, arthritic hip joints. I can also safely facilitate partial weight bearing on a limb (i.e. after a fracture) by lifting the contralateral limb, allowing the water to provide support with or without a lifejacket.

The tub's multiple "jets" are useful in several ways. I can adjust the direction and intensity of the jet for massage to a specific area on the dog. My own Rottweiler loved the hot tub and would deliberately back up to the jets to get them in just the right spot. I can turn the jets in one direction to create a

"whirlpool" effect, and have the dogs either walk/swim with the current for assistance or against the current for resistance. I describe this to owners as a "low tech underwater treadmill", and point out that they get exercise too by walking around and around! Here's a recent YouTube video of "Monica" – a 12 y/o shepherd mix with OA of the hips, stifles, elbows and shoulders, and removal of a hemangiopericytoma x 2 on her right elbow.

<http://www.youtube.com/watch?v=ipl684qNrJU>. She is limited in her ability to stand/walk and likes the hot tub so much she puts her front paws up on the edge and "climbs" in with a little help. Typically, I lift dogs in/out of the tub, but also have a ramp system for heavier dogs or dogs fearful of being lifted.

Using a harness or lifejacket, I can swim small to medium size dogs around the perimeter, or hold them in place in the middle while the owner calls them. Larger dogs can walk around the perimeter, following the treat/toy/owner. Dogs can also practice sidestepping, turning and backing without loss of balance or falling. Placing children's inflatable "water wings" on a limb can elicit increased flexion and/or resist extension movements. For dogs requiring long term therapy, this gives owners a reasonable option for home treatment although most of them choose to bring the dogs to me for therapy rather than purchasing and maintaining their own tub.

**LIFE IS LIKE A DOG
SLED TEAM...**

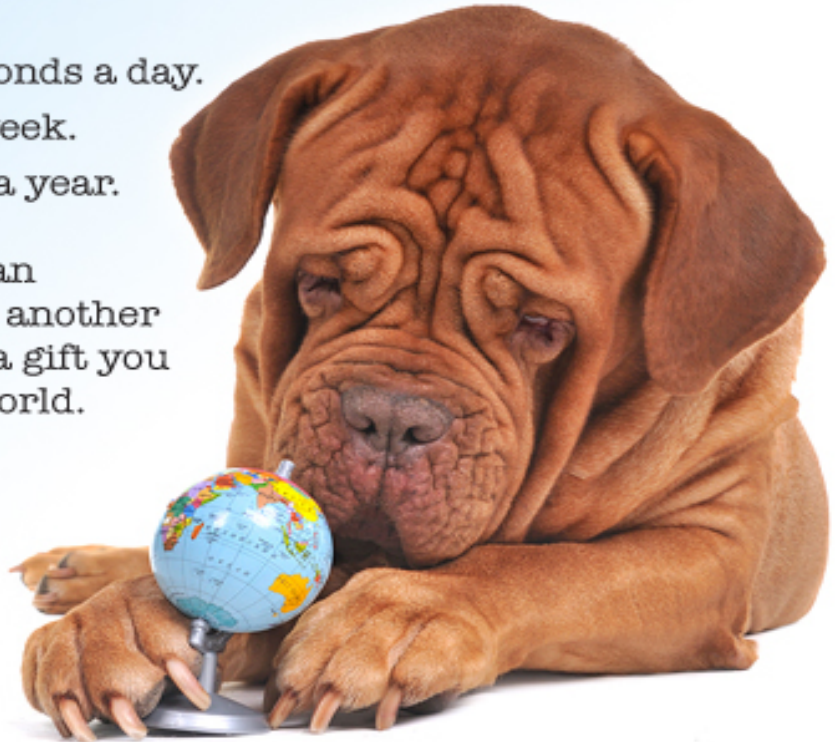
If you aren't the lead dog, the
scenery never changes!

**A DOG CAN EXPRESS
MORE WITH HIS TAIL
IN MINUTES...**

Than most people can express with
their tongues in hours!

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604,800 seconds a week.
31,536,000 seconds a year.

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life. Every second is a gift you
can share with the world.



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