

CANINE SIJ CASE STUDY

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Solomon was an 8-year old, intact male Great Dane. He suffered a recent acute onset lameness (3-week duration) of his right hind leg following a suspected trauma of his limb being caught in a hide-a-bed / sofa-bed. The chief complaint was that Solomon was walking on the dorsum of his right foot and dragging it on ambulation when found on the morning of February 11th, 2006. He was assessed by 4 different veterinarians at various clinics (including a surgical referral centre), without attainment of a definitive diagnosis before being referred to The Canine Fitness Centre (Laurie Edge-Hughes) by the regular veterinarian for assessment and treatment.

The referring veterinarian relayed the history but did not provide a provisional diagnosis. The report from the veterinarian at the surgical centre (February 18th, 2006) localized the lesion to right L6 – S2 partial sciatic or peroneal nerves and listed the differential diagnoses as traumatic neuropraxia, peripheral nerve tumor, fibrocartilagenous embolism, asymmetrical lumbosacral disease with nerve root compression, or focal inflammatory disease and possible concurrent testicular tumor. However, the owner had declined radiographs and MRI.

Past medical history included a systolic heart murmur, neck pain, dragging of the left forelimb and a right shoulder lipoma in Dec 2001. The heart murmur was not present in Jan 2002 and the neck pain and leg dragging resolved a few months later. In August 2002 Solomon had the lipoma removed. He suffered an ear infection in Dec 2002. In May 2004 he was found to have atrophy of one testicle and was dribbling urine in June 2004. All issues were treated medically by the attending vet. However, no residual issues from any of these problems were present at the time of this injury.

The Physical Therapy assessment occurred on March 4th, 2006. History was given as per above. The owner was using a leash wrapped around Solomon's foot to help with foot placement. She stated that Solomon's leg weakness was sudden and had not improved or deteriorated since onset. He was no longer on any medications, but had been on steroids and muscle relaxants when first treated immediately following the injury. On visual examination, there was an open wound on the dorsum of the D3 toe on the right rear leg and generalized atrophy of all of the muscles distal to the right stifle and the central caudal thigh muscles. No ataxia or muscle guarding posture (cervical, thoracic or lumbar) was noted.

On palpation exam, there was full passive and active ROM and lack of tenderness of the cervical spine. There was no tenderness or palpable joint dysfunctions or asymmetry of the thoracic or lumbar spine or adjacent musculature. The pelvis was asymmetric, with the right ilium being caudally slipped and dorsally rotated, and there was palpable tenderness of the piriformis muscle. Kinetic testing revealed an inability of the right ilium to ventrally rotate. All extremity joints of all four limbs displayed full passive

ROM, and no heat or swelling was detected in any. Mid thigh circumference was measured as 40 cm on the left and 35 cm on the right. Calf muscle circumference as measured 4 cm distal to the stifle joint line was 22 cm on the left and 18.5 cm on the right.

Neurologic examination revealed a sluggish to sometimes absent placing reflex of the right hind foot. All other limbs were normal with this test. No crossed extensor reflex was present in either hind limb (nor in the front limbs). There was reduced sensation to toe pinch in the right hind paw, but deep pain was present. Muscle reflexes of the tibialis anterior, calcaneal tendon and semimembranosis and semitendonosis tendons were diminished. Muscle reflexes of the vastus lateralis, biceps femoris, gracilis, gluteals and the patellar tendon were normal. Pronounced atrophy and hypotonicity of semitendonosis, semimembranosis, and all of the musculature distal to the stifle was noticed.

The physical therapy working diagnosis was that of sciatic nerve neuropraxia secondary to pelvis misalignment / SIJ kinetic dysfunction.

Treatment consisted of manipulation (grade 5) and mobilizations (grade 3 and 4) of the right ilium into both cranial glide and ventral rotation. Craniosacral therapy was also administered to the sacroiliac joints bilaterally. Electrical muscle stimulation to the semitendonosis, semimembranosis (together) and the tibialis anterior muscles was applied at 5 pulses per second, 10 seconds on, 10 seconds off for 10 minutes. Laser therapy at 16 Hz for 10 seconds per point with a 200mW, 850 nm Gallium Aluminum Arsenide laser was utilized on the toe wound, along side of the right sacroiliac joint and on the acupoints GB 30, UB57, UB40, UB60 and Liv3 on the right side. As well a home program was created that included tapping down the back of the thigh or anywhere below the knee to stimulate reflexive muscle contractions, 3-leg standing to increase strength, proprioception and balance, rubbing / poking / pinching / flicking up the right leg in order to stimulate the sensorimotor system, pointer laser pen stimulation to the right toe wound (1 – 2 minutes per point, once a day) and hill walking and walking on grass.

Follow-up treatments were conducted once a week for the next 3 weeks. Improvement was rapid. By March 11th, 2006, Solomon was able to walk without the owner moving the foot for him, and was placing the foot more consistently. The sore on the toe was beginning to heal and the pelvis was symmetric, without tenderness of the piriformis muscle. Treatment included electrical muscles stimulation (as utilized above) and pulsed electromagnetic field set at 15Hz for 20 minutes to the sciatic nerve where located in the rump area. The next treatment was on March 18th, 2006. The owner reported that Solomon has only had one episode of walking on the dorsum of his foot but corrected the mal-position immediately. On examination, the semitendonosis and semimembranosis were filling in, gastrocs muscle tone/bulk was improving, and tibialis anterior, while improved in tone, was atrophied most substantially in comparison to the other muscle groups. The pelvis remained symmetric. Treatment included NMES as in previous sessions and resumed laser use on an increased setting of 155 Hz (to the right SIJ and

acupoints GB30, GB29, GB34, UB40, UB57, GV3, GV4 and Bai Hui). The owner was continuing with the home program, increasing the hill walking component.

A final assessment was made on April 1st, 2006. The owner was pleased with Solomon's recovery and reported that she had not witnessed him scuff or walk on the dorsum of his foot during the two weeks since the last appointment. On examination, mid-thigh circumference was found to be 39cm on the left leg and 38.5cm on the right leg. The calf muscle girth (4cm distal to the stifle joint line) was 21.5cm on the left and 20.5cm on the right. Reflexes were normal throughout the right hind leg (tibialis anterior, calcaneal tendon, patellar tendon, semitendonosis, biceps femoris and the gluteals). Conscious proprioception (placing reflex) was normal for the right foot and general muscle tone was symmetric from side to side. His final treatment consisted of the creation of a new home program that consisted of hill walking, walking over obstacles, walking backwards and crossed leg standing (standing on a diagonal pair of legs – right hind and left front). Solomon was discharged from active treatment, with the instructions that if the owner had any questions or concerns, to feel free to call. A discharge note was sent to the referring veterinarian.