Femoral Nerve of the Dog
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Lacie, a 3-year-old Yorkie mix, presents to a canine rehabilitation center post Femoral Head Osteotomy (FHO) surgery. While physical rehab is typically useful for all orthopedic surgery patients, it was going to prove especially pertinent for Lacie. Lacie, excited to be trotting through the peaceful center, is holding up her right pelvic limb. This particular foot is scuffed and irritated. What is causing this?

Let’s take a step back and see what an FHO is for, and why Lacie had one. Lacie had avascular necrosis of the femoral head. According to the American College of Veterinary Surgeons an FHO “…involves removing the femoral portion of the hip joint (i.e., the ball) in order to reduce the pain produced by abnormal hip joint contact and the stretching of the soft tissues around the joint due to laxity…” The goal of an FHO is to relieve pain associated with hip dysplasia or in Lacie’s case, avascular necrosis. Following an FHO, surgeons will strongly recommend rehab to assist with range of motion in the hip and initiate use of the affected limb.

Unfortunately for Lacie, with any surgery comes possible complication. One complication that can be caused from this surgery is nerve damage. The nerve affected in Lacie’s case was the femoral nerve. It is hard to say what causes the damage, whether it is the incision or the general nature of the operation. (Sometimes, when much time has past, nerve damage can still occur from scar tissue surrounding the nerve). In any case, it has rendered Lacie with chronic pain and secondarily progressive muscle loss.

A nerve is well defined by the Merriam-Webster Dictionary as “ any of the filamentous bands of nervous tissue that connect parts of the nervous system with the other organs, conduct nerve impulses, and are made up of axons and dendrites together with protective and supportive structures.” The damaged nerve, the femoral nerve, is located in the femoral quadriceps and arises from the lumbar nerves 4-6 (see Dog Anatomy-A Coloring Atlas).

Palpation of any nerve would be difficult as they are so small. The only time you would be able to palpate this nerve is if the quadriceps was severely contracted. You can palpate the femoral artery, which is commonly used in veterinary medicine to collect a pulse. Collecting a pulse from the femoral artery is very useful when you have a panting dog, making it difficult to hear a heart rate.

Damage or injury to the femoral nerve can cause misfiring’s. In Lacie’s case these misfiring’s are caused from a surgical procedure focused in the area. The nerve damage has caused intermittent lameness and chronic pain, which is secondarily causing muscle loss and decreased range of motion of the affected limb. Lacie’s foot is so sensitive that even a toenail trim is nearly intolerable. Lacie’s surgeons and primary veterinarians have recommended amputation.

As most can imagine, this is a very difficult decision for an owner to make. For now Lacie’s owner elects to start rehab in hopes to keep the unaffected limb strong. At Lacie’s rehab center, she receives acupuncture and hydrotherapy. Lacie’s mom also has at-home exercises and therapies.

For acupuncture, Lacie’s doctor focuses on certain meridians that run by or near the femoral nerve. These meridians include the gallbladder, bladder, and stomach. Acupuncture in these meridians can be used to treat stifle problems, such as ligament tears, hip arthritis, or medial
patella luxation and many more. The nerve damage, for Lacie, is untreatable but acupuncture is helpful in relieving pain and helping with any arthritis that she will be susceptible to. Lacie also comes for hydrotherapy every other week, and walks for 15 minutes each session. In order to build up this endurance, Lacie would come once weekly for 10 weeks.

At home Lacie’s mom massages, using a battery operated massager, the spine and hips. She also uses a hot back on the affected limb for 5-10 minutes twice daily.

Take note that the massaging Lacie’s mom does at home is not at the affected site. Massing is systemic, massaging different areas of the body have major impact on other areas and systems. Massaging with the nervous and neuromuscular systems in mind can be very beneficial for misfiring’s. Massaging can stimulate sensory nerve endings that release chemicals, which determine the flow of energy! Massage can reach both the somatic nervous system, which controls voluntary movement and the autonomic nervous system, which controls the involuntary movement.

In conclusion, there is still much to be known about nerves but it is certain that they are very powerful. When damaged they can have very severe affects on the body, but using therapies that help direct natural energy flow can prove very useful for chronic pain or other side effects.

*The case study involving “Lacie” is based on true events, but the patient’s name has been changed and no owner information was given.

Below are some pictures of the femoral nerve, its location, and the meridians that run near.