

## **Necrosis of the Femoral Head in Dogs**

By Dr. Karen Becker

Hello, this is Dr. Karen Becker. Necrosis of the femoral head is known by several other names, including Legg-Calve-Perthes (LCP) disease, Legg-Perthes disease, and aseptic or avascular femoral head and neck necrosis, which is actually the most descriptive and correct term, but it's just long and difficult to repeat. For today's video, I will be calling this condition LCP.

The hip is a ball-and-socket joint, and the femoral head is the ball part of the joint. Necrosis of the femoral head means that the ball part of the joint progressively deteriorates and dies, and the joint can no longer function properly. Continued use of the hip, which is a weight-bearing joint, sets the stage for early osteoarthritis. The deterioration and eventual death of the bone is due to a loss of blood supply, resulting from either a growth abnormality or trauma to the leg or hip.

LCP is most often seen in young small-breed dogs weighing less than 25 pounds. But it also occurs in larger breeds and can actually occur in cats as well. Terriers are the most predisposed breed to this particular condition, including the Cairn, Manchester, West Highland white terriers, as well as, miniature pinschers and toy poodles. The condition occurs in both males and females, usually between 4 and 12 months of age, and is most often unilateral, meaning it occurs in only one hip.

### **Symptoms and Diagnosis**

Necrosis of the femoral head in dogs is a painful, as you can imagine, and it's a crippling disease. The most common sign is a slow, progressive hind limb lameness, ultimately leading to the inability of the dog to bear weight on one or both back legs, depending on which leg is affected. When the condition is bilateral, meaning both hips are affected, it often begins in one leg and then progresses to the other. You can have the shifting leg lameness on the rear.

What pet owners usually notice first is that their pet has developed an abnormal gait or limp. You can see them as young dogs gait very well and then they end up gaiting very abnormally. You can see very clear signs of physical pain. You can also see swaying or staggering. Obviously there could be some discomfort when lying down or standing up. Many of these dogs have a reluctance to run or jump, they can have difficulty climbing stairs or descending stairs, and generally, can be irritated because they have chronic pain.

When examined by a veterinarian, there will be evidence of pain when the hip joint is extended, particularly with internal rotation. Pain will also be evident on forced abduction of the hip joint, meaning you're moving the leg away from the body. There also could be an audible click when the hip pops out of the joint, or there could be a grating sound of bone on bone – this is called crepitus – that indicates cartilage loss inside the joint. If the condition is advanced, the muscles of the affected leg will begin to contract, and the leg could actually be shorter than the healthy leg.

Diagnosis also involves taking X-rays of the hip to visualize the degree of damage to the joint and evidence of degenerative joint disease or osteoarthritis. Depending on the level of pain involved, some dogs may either need to be sedated or anesthetized to endure not only a thorough physical exam but the X-ray process.

## **Treatment and Care**

In certain situations, conservative therapy rather than surgery can be attempted. For example, if the femoral head is still round, if the joint spaces are still parallel, and if the femoral head and the acetabulum (or the ball and socket) are congruent, the dog can be immobilized with very strict cage rest in an effort to help allow the body to heal itself.

Healing can only occur when the dog is resting and non-weight bearing. Strict cage rest in this situation means that actually the dog is only let out of the kennel to relieve himself. The owner carries the pet from the cage to the grass, where it's kept on a very short leash. He's allowed to pee and poo and then he goes back into the kennel. Obviously, this is a really hard thing to do, emotionally, for both the dog and the caretakers. The dogs feel they are in prison and the owners feel helpless, as you can imagine. It's really hard.

A monthly X-ray should be taken to monitor the progression of the condition with the goal of complete resolution of both radiographic and clinical signs.

In some dogs, strict adherence to this therapy can result in normal X-rays of the femoral head, complete relief from pain, and normal movement. This takes from 4 to 6 months for the femoral head to heal to the point where unrestricted weight bearing is permitted. During this time, adjunctive therapies such as laser therapy, acupuncture, and massage can be quite beneficial for pain reduction and improving circulation. Some vets are now advocating non-weight bearing water therapy as well. I have seen this be beneficial in my practice for maintaining general muscle tone during this long rest period.

I also use supplements with these dogs, including the antioxidants – astaxanthin and ubiquinol. I use turmeric and omega-3 fatty acids as well. Hyperbaric oxygen therapy is really proven to be very beneficial for humans with avascular necrosis. If you have access to this treatment for your pet, I would highly recommend it as well.

## **Surgery and Post-Surgical Care**

If the femoral head continues to deteriorate or collapses during the dog's confinement period, surgery will be required. In most cases of LCP, surgery is the recommended treatment and involves removing the femoral head and neck, which is called a femoral head and neck ostectomy (FHO). During healing from surgery, the dog's body produces a fibrous tissue that creates a false joint. If the condition affects both hips, the surgery can be done on both legs at the same time or staged 6 weeks apart.

Passive physiotherapy – ultrasound, laser therapy, electrical current, heat and cold, as well as acupuncture – should be started as soon as possible after surgery. Carefully supervised exercise with very short, slow-leash walks should be started as early as three days after surgery. But it depends on your surgeon. Swimming can be very beneficial once the sutures have been removed as well. Analgesic and anti-inflammatories can help in the post-operative period. But most pets can begin to be transitioned to a natural pain management protocol after 3 to 4 weeks.

There are rarely complications from FHO surgery. However, a small number of dogs will continue to have some limping and/or discomfort. Sometimes a second surgery is required to remove residual bone spurs that are causing discomfort. I do strongly recommend that this procedure be done by a board certified orthopedic surgeon. If a general practitioner will be doing the procedure, I think it's imperative

he or she have extensive FHO surgical experience. In small breeds it's usually not necessary to replace the hip joint. But in larger dogs, the condition can require total hip replacement in some situations.

Since most cases of necrosis of the femoral head are inherited, there's a limit to what you can do to try and prevent this disease from developing, other than not breed dogs carrying LCP DNA. If you're planning to purchase a small-breed puppy from a breeder, ask about the potential for this disease in their breeding stock. If you have a small breed dog less than a year of age, keep an eye out for any signs that your pet may be having mobility problems or rear-limb pain problems. The sooner the condition is discovered, the better your puppy's chances for a complete recovery and minimal arthritic changes.

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