

Fractures of the Distal Femoral Physis

Basic facts

A fracture is synonymous with a broken bone. Puppies and kittens have growth plates at the end of the femur bone from which the bone grows. Growth plates are susceptible to developing fractures in immature animals. One such growth plate located at the bottom of the femur bone called the distal femoral physis (see illustration right, arrow).

Signs and diagnosis

This type of fracture usually occurs in dogs and cats that are less than one year of age. The most common cause of a femoral fracture is trauma such as being struck by a motorized vehicle or taking a fall. Affected pets will bear minimal to no weight on the fractured limb. The lower part of the thigh, near the knee will be swollen, painful to touch and may be crepitant (crunchy) when the knee is flexed and extended. The diagnosis of this type of fracture is made by x-raying the limb.

The day of surgery

Our anesthesia and surgical team will prescribe a pain management program, both during and after surgery that will keep your companion comfortable. This may include a combination of general anesthesia, injectable analgesics, epidural analgesia, oral analgesics, and anti-inflammatory medication.

Surgery

Distal femoral physeal fractures always require surgery for a successful outcome. Without surgery the pet usually will develop a stiff limb that has poor function. This type of fracture is also not amenable to a splint or cast. Surgery should be done as soon as possible, so that the broken end of the bone does not get worn down, thus preventing the fracture from fitting together properly. In addition, chronic fractures may be very difficult to put back together, as the tissues around the bones become permanently contracted. Surgical repair of a distal femoral physeal fracture requires an incision located on the outer side of the lower thigh and knee. The bones are realigned and two pins are inserted to keep the fracture in place.



Home care

After surgery, you can continue to give your pet a prescribed pain reliever to minimize discomfort. It's also extremely important to limit your pet's activity and exercise level during this post-operative period. Rehabilitation exercises can be done at your home or if you choose, by professionally trained therapists at an animal rehabilitation center. Rehabilitation therapy should be continued until your dog is bearing weight well on the operated limb (typically 2 - 4 weeks after surgery). Detailed instructions will be given to you after the surgery. The surgeon will monitor the healing process with two follow-up exams. The first is scheduled at two weeks after the surgery and the second is at five to eight weeks after the surgery; during the second visit the repaired bone will be x-rayed. By 8 weeks after surgery, most dogs and cats are fully weight-bearing on the operated limb, although exercise should be limited during the first three months after the procedure.

Results

Primary repair of the fracture has been reported to be successful in 93% of the cases, whereas, no surgery will result in persistent lameness and a poorly functioning limb. Our surgeons also find that this fracture typically goes on to heal unevenly in most cases. Uncommon complications include infection, breakage of the pins, migration of the pins (requiring removal or replacement of the pins), and collapse of the fracture site.

Reference

Whitney WO, Schrader SC. Dynamic intramedullary cross-pinning technique for repair of distal femoral fractures in dogs and cats: 71 cases (1981-1985). J Am Vet Med Assoc 1987 Dec 12;191(12): 1592.

Assessment and recommendations

Treatment

Surgery is recommended

The following has been prescribed

- No medications or special diet are necessary at this time
- Pain controlling medication: _____
- Nonsteroidal anti-inflammatory medication: _____
- Antibiotics: _____

Exercise

- Confine your pet to the house other than very short leash walks necessary for bowel movements and urination
- Restrict exercise to leash walks 10 minutes twice daily

Preparation for surgery

- Start fasting your companion at midnight before the surgery; water should not be withheld
- Pepcid AC 10 mg tablets: give _____ tablet(s) with water (use a syringe if needed) at 6 AM on the day of surgery