

Radius and Ulnar Bone Fractures

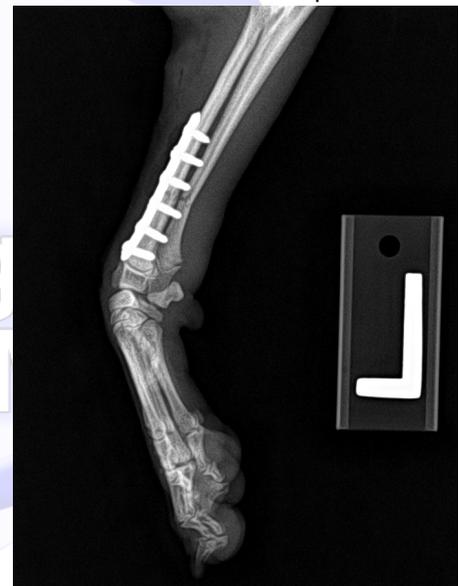
Anatomy

The forelimb has two bones between the wrist or carpus and the elbow joint: the radius and ulna bones. The radius is the main weight-supporting bone of the forelimb, whereas the ulna bone supports only 20% of the weight. Puppies have much softer bones than adults; therefore more fractures occur in younger dogs. In addition, small breed dogs have a poor blood supply to the lower fourth of the radius bone, which increases the risk for fracture. Due to the impaired blood supply to the lower fourth of the radius bone, healing of the fracture can take longer than other bones in the body. Large breed dogs have a much better blood supply to this region; therefore a very substantial force needs to be applied to the bone before a fracture develops. If the radius fractures, the ulna usually fractures too.



Cause of fracture

In small breed dogs, landing on the front limbs from a fall is the most common cause of fracture of the radius. Examples of such trauma commonly include the pet falling out of the owner's arms or the pet jumping off a bed. In large breed dogs, usually substantial trauma is needed, such as being hit by a car, to cause the bone to fracture. Gun shot injuries not only can fracture the bone, but will result in an open wound over the fracture through which dirt and hair usually are driven into the tissues. This could potentially result in infection and delayed healing of the bone.



Surgery

For most fractures of the radius and ulna, a bone plate and series of screws are used to stabilize the fracture. This treatment requires the least amount of care for the client and has the best chance for a successful outcome. If the fracture is caused by a gunshot or other trauma that results in an open wound over the fracture site, an external fixator may be the treatment of choice. Also, if the radius bone is fractured in multiple small pieces, the best treatment may be an external skeletal fixator. This apparatus consists of multiple pins that penetrate the skin and bone and are connected to external bars that run parallel to the bone.

An older technique to repair a radius fracture involves placement of a single pin into the marrow cavity of the bone. This method of repair is considered less than ideal, as it does not provide adequate stability for predictable bone healing. Similarly, the use of a cast as the sole treatment commonly results in a nonhealing fracture.

Home care

After surgery, you can continue to give your pet a prescribed pain reliever to minimize discomfort. A bandage should be kept on for 3 to 5 days after surgery. You may remove the bandage at home or if you

choose, return to your local veterinarian or us to have this done. In some cases, a splint or a cast may be required for additional support until the bone has healed. It's also extremely important to limit your dog's activity and exercise level during the post-operative period. Detailed instructions will be given to you after the surgery. The surgeon will monitor the healing process with at least two follow-up exams. The first is scheduled at two weeks after the surgery. During the second exam, at five to eight weeks after the surgery, radiographs will be made to evaluate healing of the bone.

Results

Repairing a fractured radius with a plate and screws offers multiple benefits in comparison to older techniques which include a faster recovery, earlier use of the limb after surgery, better chance to return to athletic activity, less risk of a second surgery being required, and better range of motion of the joints above and below the fracture. Uncommon complications include infection, nonhealing of the fractures, breakage of the metal plate, osteoporosis of the bone, bone cancer, cold sensitivity and fracture of the bone again. In general, about 90 to 95% of the patients that have surgical plating of a fractured radius heal uneventfully.

Assessment and recommendations

Patient: _____ Date: _____

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 a crate and carry him/her outdoors for bowel movements and urination
- Confine your pet to the house other than very short leash walks necessary for bowel movements and urination
- A splint/bandage has been applied. Twice daily, please check for:
 - Swelling of toes (if there is no swelling the middle two toe nails will touch each other)
 - Cold toes – this may indicate poor circulation
 - Foul odor
 - Discharge seeping through the bandage
 - Increased lameness
 - Excessive licking or chewing at the bandage
- The splint/bandage should be changed in _____ weeks; the limb will be supported by a splint/bandage for a total of _____ more weeks

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