Post Surgical Care of External Fixators

Home patient care after application of an external skeletal fixator is critical for fast fracture healing and patient comfort. In addition to following the instructions in the Fracture Rehabilitation Program handout, the following instructions are intended for patients with an external fixator apparatus. External fixators have been in use since World War I and have been shown to promote excellent bone healing with very few complications. If you have any questions about the use of an external fixator versus pins, wires, or plates in your pet, please feel free to discuss them with your surgeon.

Pin Tract Management

An external fixator utilizes specialized surgical stainless steel pins that connect an external connecting rod (usually titanium or carbon fiber) to the bone by entering through the skin. The area which includes the pin, skin, underlying tissues and bone is called the “pin tract”. We have four goals for this pin tract in order to maximize the comfort of your pet, minimize the risk of infection, prevent loosening of the pin, and encourage full use of the leg:

1. The amount of bacteria populating the pin tract should be kept to a minimum.
2. We need to minimize motion or loosening of the pin.
3. Motion of the soft tissue in contact with the pin should be minimized.
4. Any fluid accumulation around the pin tract should be allowed to drain to the outside.

Accomplishing these goals is impossible without your cooperation and commitment. Feel free to call the hospital if you have any questions about pin tract management or if you prefer to have the fixator technician assist you in performing the necessary maintenance of the tract and fixator.

Normal Pin Tract Appearance

All pins will introduce some degree of inflammation and drainage. This drainage will inevitably contain bacteria. As long as this fluid can drain freely, secondary infection is rare unless the pin is loose in the bone or the soft tissues are moving excessively on the pin tract. When this drainage is blocked, secondary infection is likely. The signs that a pin tract is infected include excessive or foul-smelling drainage, decreased use of the limb, pain, hardening of the skin around the pin (indurated), redness or swelling around the pin, or loosening of the pin (to be determined by the surgeon).
Failure to keep the pin tract freely draining and clean will lead to infection and probably pin loosening, which can lead to loss of stability of the fracture and slow or stop the healing of the fracture!

Fixator Care First Week

During the first week after the surgery, a sterile dressing must be applied and kept in place by the fixator technician. Do not allow the dressing to become wet or soiled. **Have the dressing changed immediately if this happens.** The fixator technician will evaluate the surgical wounds and tell you when non-sterile dressings can be applied. Additionally, the bandage will include the paw (in lower limb fractures) for the first seven to ten days in order to decrease swelling and discomfort. We would like to see no swelling and your pet bearing “good” weight on the limb every step before reducing the bandage to the fixator area only. Occasionally a patient will utilize the limb very little until the entire fixator is removed, but healing is much faster if you can encourage your pet to use the leg as much as possible. This not only stimulates the bone to heal, but it promotes good circulation of blood and lymph in the leg which is necessary for nutrients to reach the fracture site and fluids necessary to keep the pin tract healthy.

If your pet is at home, please be sure to have the dressing checked or changed three to five days post-operatively. If you see any blood or drainage visible on the surface of the bandage (strike through) or detect any bad odors, have your pet seen that day!

Fixator Care After The First Week

In normal conditions, the bandage needs to be changed every two to four weeks. This depends upon how much drainage or soilage there is on the bandage. You will need to have a supply of 3X3 gauze bandages (readily available from a pharmacy or your veterinarian) and an outer elastic wrap. This wrap can be a re-useable laundered ace bandage or disposable wrap. When you remove the old bandage the crusts around the pins can be cleaned with hydrogen peroxide on a Q-tip or a warm water spray from a hand held sprayer (no soap). The bulky wrap is replaced after stuffing wads of “fluffed up” gauze 3X3 sponges between the metal fixator and the skin. These sponges immobilize the soft tissue, keep the pin tracts clean, and wick drainage away from the pin tracts.

Change the bandage every two to four weeks unless:
1. Your pet suddenly starts licking or biting at the wrap
2. Odor is noted from the wrap
3. There is strike through
4. The wrap becomes wet or soiled
5. The limb swells anywhere
6. If weight bearing decreases

Fixator Technician

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Normal Fixator Appearance

Abnormal Pin Appearance

Swollen Leg With Clamp Inbedded In Skin
Owner Clean Pin/Skin Interface
Every Few Days

Owner Apply Neosporin/Triple
Antibiotic Ointment

Owner Pack Around Pins With Gauze or Cotton

Owner Wrap Around Gauze With Ace Bandage or Vet Wrap

Doctor Applied Full Wrap For First Week On Lower Limb Fractures