Informed Consent

Fracture Repair
External Fixation

Your pet has been diagnosed with a fracture. The goal of surgery is to realign the bone and place some method of fixation to hold it in place. One of the methods used to repair fractures is called external skeletal fixation (ex fix). Pins are placed through incisions in the skin into the bone on either side of the fracture. Connecting bars are secured to the pins and are used to transmit the weight forces from the bone to allow the bone to heal. As healing progresses, they are removed pretty easily, in usually, one or two stages. Generally the prognosis with surgery is much better than without, and the prognosis is generally good to excellent. However, the prognosis for some fracture types (complex fractures) may not have as good of a long term prognosis due to complexities of repair. You have elected surgical repair/fixation of your pet's fracture and even though the prognosis is favorable with surgery, we need to make you aware of a few of the most common complications that could arise after this surgery. If you have any questions or concerns, please let us know.

The risks of complications after fracture repair is low, about 10% of cases. Here are some potential risks:

Pin tract infection- daily care is required of the pin tracts and despite that or if care is not provided, infections can develop, which may require additional care and maybe antibiotics

Incision infection: this is a risk with any surgery and is usually treatable with antibiotic therapy

Implant failure- if there is too little fixation applied or there is too much activity after surgery, the pins or bars could loosen or break prior to bone healing. Generally, the bone takes about 3 months to heal (closer to 2 months in very young pets) and the fixation has to hold up during this time to remain effective. Generally implant failure requires revision surgery.

Implant loosening- generally expected at some point during or after healing, when pins become loose, they should be removed. If healing has not completed, revision may be necessary.

Inadequate reduction - we try our best to put bone back together how it was before the fracture occurred. We cannot, however, always get it back together as "perfect" as it was, and this is referred to quality of reduction. Most bones will heal and function just fine, as long as they are close to where they need to be, but in some cases, revision may be needed.

Improper implant position- there are goals we have when positioning the pins and if we find out they are not where they are supposed to be (either while in surgery or when checking the X-rays after surgery is over), that may require revision, usually immediately. However, the risk here is not only that the fixation needs to be replaced because it is less effective or ineffective, but if fixation isn't where is should be, it could cause problems. Examples include a long pin that crosses into a joint and causes some damage to the cartilage, a pin that exits part of the bone we do not intend and causes nerve damage, or irritation to muscles . The issue isn't relevant to the fracture being repaired per se, but the location of the fixation being where it shouldn't be.

Healing complications- there could be a delay in normal healing (delayed union) where the bone takes longer to heal than expected. There could be a situation where the bone isn't able to be put back together as it was and it might heal "wrong" (known as malunion). Malunion doesn't usually require revision but it could affect limb function. If the bone simply doesn't heal, that is known as nonunion and is usually due to excess motion or infection, but usually requires revision.

There can be damage to soft tissues including muscle, tendons, ligaments, nerves, and blood vessels. This could be due to the trauma that caused the fracture, or could occur during surgery. Of the soft tissues, usually the most permanent is nerve damage. Suffice to say, we identify what we can identify before surgery, fix the fixable things, and if anything after surgery seems to be an issue, we fix what we can, but damage to soft tissue structures could require additional surgery, or may not be fixable.

Angular limb deformity- fractures in skeletally immature animals can cause damage to the growth plates that could cause growth disturbances as they continue to grow. In addition, fractures that involve or are close to growth plates in young dogs and cats that are repaired surgically could also be disturbed by the fixation that is applied to repair the fracture. The severity of the deformity often ultimately depends on the age of the pet at the time of the disturbance. This may or may not require additional surgery to remedy, depending on the severity of the deformity and the function of the leg at the time the deformity is noted.

Osteomyelitis- this is a rare but severe infection of the bone

Fractures and fracture biology is complex and dependent on the individual animal with it's biology, the trauma that caused the fracture, and how that trauma affected the animal. The reality of this situation is that there may be issues and complications we cannot predict. In other words, this list is not exhaustive, but includes the most common issues we do see. Please let your surgeon or veterinary staff know if you have concerns.