INTERNAL FIXATION OF FRACTURES IN LLAMAS AND ALPACAS
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South American camelids are large animals with similar bone structure to equine and bovine species. Long bone fractures are common in these species and primary cause of fractures in these species is thought to be traumatic in origin. Once a fracture is suspected, further traumatization to the fracture site should be prevented by stabilization of the fracture. Stabilization will prevent further trauma to the fracture itself as well as the surrounding soft tissue. Compromise to all these structures can have a significant impact on the success of the fracture repair and may change the way you are going to approach your fracture repair.

The basic principles of fracture healing are similar to other species such as equine and bovine species. Fracture healing is associated with factors associated with the fracture itself as well as patient factors. Fracture configuration, stability and presence of infection as well as age of animal, body condition, temperament, and pregnancy can influence the healing of a fracture. Therefore the healing of any fracture can vary tremendously between animals. Fractures in young animals have a tendency to heal faster than fractures in older animals.

Yet relatively little is known about the results of fracture treatment. The optimal methods for treatment of long bone fracture repair in camelids are unclear, and complication rates vary widely between studies. Our clinical impression is that internal (plate) fixation results in a favorable outcome with few major complications compared to other methods of repair. Internal fixation results in superior fracture alignment and anatomic reconstruction; however the increased costs due to anesthesia, surgery and the implants are definitely something to keep in mind.

Internal fracture fixation can be accomplished with intramedullary pins and cerclage wire, intramedullary interlocking nails and bone plates and screws. Not all fracture configurations can be repaired with each technique. Plus each of these techniques has its advantages and limitations. Intramedullary pins have been reported to be limited primarily to humeral and femoral bone fractures. Short oblique, transverse, comminuted or segmental fractures are also not candidates for this type of fracture repair. The intramedullary interlocking nail construct is best applied in femoral, tibial and humeral fractures. This technique most likely requires the most specialized surgical skill and equipment. Fracture repair with bone plates and screws is similar to the technique in other species. We have noticed that orthopedic implants for small animal patients are sometimes more suitable than those used for large animal patients. Whatever technique is used for fracture repair, once the fracture is healed the orthopedic implants typically do not need to be removed unless they cause lameness or other problems.

In conclusion, the choice of repair of a long bone fracture depends on many factors; however we feel that internal fixation of long bone fractures in camelids may have a better outcome than other types of repair. Internal fixation provides more stability and allows near perfect anatomical reconstruction of the bone, which favors healing with minimal complications. Although internal fixation is a more challenging and costly procedure, it provides fewer problems, which benefits the animal in a better outcome.