Articular and Periarticular Fractures

Walter Renberg, DVM, MS, DACVS Kansas State University Manhattan, KS

Managing articular or periarticular fractures is challenging for a variety of reasons. Errors in alignment can quickly result in angular limb deformities that limit function, and errors in reduction can result in rapidly progressive arthritis. Furthermore, by their nature these fractures may involve small pieces that provide minimal room for placing fixation. Lastly, due to the attachment of muscles and ligaments in the area, the approach may be difficult and unfamiliar. The factors, taken together, should be reason for the inexperienced orthopedist to pause and consider whether the case is one for them to take on. This presentation will discuss these challenges and will address specific common articular or periarticular fractures.

The goals of repair of such fractures are the same as for any other: appropriate reduction and stability while minimizing mortality and preserving function. Specific to these injuries, care must be taken to not damage articular cartilage either during the approach or by inappropriate placement of implants. Except in extreme cases, care should be taken to preserve joint motion as this will maximize cartilage health and the patient's return to function.

One of the most frequently encountered articular fractures is one involving the humeral condyle. Lateral fractures (such as a Salter-Harris type IV) are common, but medial fractures or "Y" fractures also occur regularly. The approach to these fractures is not unduly difficult (take care with the radial nerve) but the reduction and placement of implants is challenging. Small errors will result in joint incongruity and fracture fixation failure.

Fractures of the distal femoral physis are somewhat easier, but still hold significant challenges. The use of cross- or Rush- pins necessitates minimal hardware but the reduction of the fracture and the placement of the implants takes some training. Tibial physeal fractures will also be reviewed as they can be very rewarding.

Fractures of the distal radius and ulna in small breed dogs are prone to nonunion. They are usually managed with plate fixation, but the small distal pieces mean that they should not be attempted by beginners.