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Case Study

Open Reduction and Internal Fixation with Intra-medullary Steinmann Pin of Diphyseal Humeral Fracture in Dog

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Abstract:

A 3-year-old female spitz was presented to veterinary clinical complex of Sri Ganganagar Veterinary College with history of traumatic injury and swelling in arm region of forelimb. On radiographic examination it was found to be a transverse diaphyseal humerus fracture. Animal was anesthetised and open reduction and internal fixation of fracture was done using Steinmann intramedullary pinning with retrograde fashion technique. Post operative results were very favourable with animal started to walk normally after 35 days.

Keywords: Open reduction, Humerus fracture, Transverse diaphyseal

Introduction:

Humeral fractures are challenging injuries to deal with. Thorough patient assessment is necessary on presentation, to evaluate for concurrent injuries and to rule out pathologic fractures. Fractures of the midshaft of the humerus can be repaired via a range of fixation strategies including plates, external skeletal fixation, interlocking nails, intramedullary pins and cerclage wires, and combination techniques. Pozzi and Lewis described lateral plate insertional incisions and lateral plate placement, which is applicable to stabilization of mid- to distal diaphyseal humeral fractures. Alternatively, Guiot et al. used a medial approach, with the intramedullary pin being inserted distally in normograde fashion from the humeral condyle via a medial distal plate insertional incision in a prospective clinical case series. Retrograde pinning of the distal fragment in humeral fractures in the dog may damage the articular cartilage and cannot be recommended.

Case History:

A 3-year-old female spitz was presented to veterinary clinical complex of Sri Ganganagar Veterinary College with history of traumatic injury and swelling in arm region of forelimb. On radiographic examination it was found to be a closed transverse diphyseal fracture of humerus bone (fig.1). Clinical examination revealed slightly increased WBC count while other blood parameters were normal. Appetite of the animal was normal with good general body condition.

Treatment:

Animal was fasted 24hr before surgical operation and was anesthetised using pre-anesthetic inj. Atropine @0.02mg/kg IM followed by inj. Xylazine @1mg/kg IM and induction is achieved by inj. Ketamine @5mg/kg IM and maintained on inj.ketamine and inj. Diazepam combination in 2:1. Animal was position in lateral recumbency with affected limb towards upside and cranio-lateral incision was given and subcut fascia was transected. Radial nerve below triceps muscle was secured carefully. Fragments of bone were isolated and 2.5mm intramedullary steinmann pin was inserted in retrograde fashion then bone fragments were reduced. Muscle and subcut fascia were sutured with 1.0 size Vicryl suture in routine closing fashion and skin was sutured with nylon suture.

Fig.1: Pre-operative lateral radiograph of humerus bone

Fig.2: Post-operative lateral radiograph of humerus bone

Fig.3: Radial nerve isolation

Fig.4: Dr. R.P.S. Baghel, Dr. Ashish Banger, & Dr. Ramveer Sharma (lt. to rt.)

Post-Operative Care: Post-operative radiograph was taken as shown in (fig.2). Animal was served with antibiotics for 5 days, NSAID for 3 days and calcium therapy for 60 days. Owner of the animal was advised to take animal under complete rest for 2 weeks until sutures get removed.

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