

Clinical Article

**SUCCESSFUL SURGICAL MANAGEMENT OF LATERAL
CONDYLAR FRACTURE OF HUMERUS IN A DOG**

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Abstract: A five month old male German shepherd pup with a non-weight bearing lameness on right forelimb was diagnosed to have lateral condylar fracture of humerus. Physical examination and radiography aided in diagnosis. The condition was treated by application of a lag screw and a cross pin. Early weight bearing was noticed and no postoperative complications were recorded.

Keywords: Humerus, lateral condylar fracture, Lag screw, cross pin, dog.

Introduction

Distal humerus fractures in dogs may result from severe trauma and may exist as simple two piece fracture or comminuted fracture (Bardet et al., 1983). Management of these distal fractures are quite challenging to the surgeon due to the presence of large muscle mass, neurovascular structures and complex shape of bone (Wallace and Berg, 1991). Less amount of bone in the distal fragments for implant placement limits the application of bone plate for these fractures (Turner, 2005). In the present paper diagnosis and surgical management of lateral condylar fracture of humerus in German shepherd dog was discussed.

Case History and Observations:

A five month old male German shepherd pup was presented to the clinics of department of veterinary surgery and radiology, NTR College of Veterinary Science, Gannavaram with a complaint of non-weight bearing lameness on right for limb. It was said to have met with an automobile accident on the previous day. Physical examination showed swelling, crepitation and pain on palpation at the elbow of affected limb. All the physiological and hematobiochemical parameters were found within the normal range. Lateral and craniocaudal radiographic views of the affected elbow joint, showed lateral condylar fracture of humerus with mild displacement of condyle (Fig-1). It was decided to stabilize the fracture by internal fixation technique and surgery was planned on the next day of its presentation.

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Treatment and Discussion

After aseptic surgical preparation the animal was premedicated with intramuscular injection of BAG (Butorphanol tartarate @ 0.1 mg/Kg bwt, Acepromazine @ 0.03mg/Kg bwt and Glycopyrrolate @ 0.005mg/Kg bwt). Anesthesia was induced with intravenous injection of Propofol at the dose rate of 4mg per Kg body weight and maintained under Isoflurane inhalant anesthesia. Animal was kept on left lateral recumbancy with the affected limb upside so that the lateral aspect of affected elbow faces the surgeon. A longitudinal skin incision of 4cm length was given over the lateral aspect of elbow joint, just cranial to the point of lateral epicondyle. The underlying brachia fascia was incised cranial to the lateral head of triceps and caudal retraction of the muscle was performed to expose the lateral epicondyle. The edges of the fracture fragments were freshened, aligned and stabilized with application of a Lag screw with 3.5 mm cortical screw of length 24mm. A 1.8mm k-wire was introduced from the lateral epicondylar ridge to cortex of diaphysis of the opposite side crossing the fracture line. The fascia and skin were sutured as per standing procedure. Postoperative radiograph showed anatomical reduction and alignment of the fracture fragments (Fig-2). Postoperatively, the dog was given intramuscular injection Cefotaxime @ 50 mg/Kg body weight for seven days, Melonex @ 0.2 mg/Kg body weight for 3 days and calcium supplements through oral route for 30 days and applied spica bandage as a supportive bandage. The animal able to ambulate on the affected limb by third postoperative day (Fig-3) and clinical union was noticed by 30th postoperative day. By the end of 120th postoperative day the animal showed normal locomotion (Fig-4) whereas radiograph showed mild dislodgement of medial humeral condyle from the articular cartilage of radius (Fig-5). Moreover, this defect did not affect the ambulation and locomotion of the limb. The lag screw was removed under general anaesthesia on the same day and the k-wire was left as it was embedded deep in the bony cortex. Animal showed no further complications during an observation period of six months.

In the present case the etiology responsible for the fracture was an automobile accident which is in correlation with the findings of Bardet et al., (1983) who reported trauma due to automobile accidents as a major etiology for distal humerus fractures in dogs. Pain and crepitation was observed by palpation of the affected elbow and similar finding were also made by Moores, (2006) in the dogs affected with humeral condylar fractures. Orthogonal radiographic views which were taken in the present case had aided in diagnosis of the condition. Moores, (2006) opined that, orthogonal radiographic views are mandate to

diagnose the condylar fractures of humerus as superimposition of condyles in single mediolateral view may give a false impression of absence of fracture. As the humeral condylar fractures are articular fractures for affective postoperative healing and locomotion of the limb proper alignment and stabilization is required. In the present case, lag screw was applied to compress the condylar fragments and a cross pin to stabilize the fragments. Similar technique was also adopted by Moores, (2006) for management of lateral condylar fractures of humerus in dogs. Matthiesen (1992) and Turner, (2005) opined that distal fractures of humerus are poor subjects for application of bone plates as the availability of bone in distal fragments for placement of implant is less. Yardimci et al., (2011) treated distal humerus fractures in dogs with unilateral semicircular external skeletal fixators and opined that the technique is practically feasible and effective in treating the distal humerus fractures in young and small dogs. Mild dislodgement of medial humeral condyle which was noticed in the radiograph of the animals during postoperative period in the present case might be attributed to increased exercise of the animal; however the effects are not noticed clinically in the animal. Finally, the treatment protocol adopted in the present case ensured a good recovery in the animal.

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<p>Fig-1: Skiagram showing the lateral condyle fracture of humerus</p>	<p>Fig-2: Immediate postoperative radiograph showing anatomical alignment of fracture fragments.</p>
	
<p>Fig-3: Photograph showing weight bearing on 3rd postoperative day</p>	<p>Fig-4: Photograph showing normal weight bearing on 120th postoperative day</p>
	
<p>Fig-5: Skiagram showing complete healing of fracture on 120th postoperative day</p>	