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Non-rigid external skeletal fixation of traumatic humero-radial (Elbow joint) dislocation in a domestic short hair cat

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Abstract

A five months cat was presented with history of limping on left forelimb since 4 days following an attack by a dog. On radiographic examination traumatic luxation of elbow was noticed. Under general anesthesia dislocated joint was reduced and non-rigid external skeletal fixation of joint was applied. K-wire was transfixed on the distal quarter of humerus perpendicular to long axis of bone and second wire was placed parallel to the first one, fixed by elastic band. Weight bearing and movement of the elbow was evident after removal of external fixators on 14th postoperative day.

Keywords: Cat, elbow luxation, external fixation, k-wire, elastic band

1. Introduction

Occurrence of elbow dislocation is infrequent in dogs and cats (Billings *et al.*, 1992, O'Brien *et al.*, 1992) [3, 4]. Due to strong collateral ligaments which provide stability & the anconeal process interlocking within the olecranon process (Schaeffer *et al.*, 1999) [5] or elbow dislocation is also caused in cats due to attacks by dogs or other animals, falling from an extreme height. The present case describes about correction of elbow dislocation by non-rigid external skeletal fixation technique and was found to be effective in correcting the dislocation.

2. Case history and observation

A five-month old intact male domestic short hair cat was presented to department of veterinary surgery and radiology, veterinary clinical campus, River, Puducherry with a history of limping on left forelimb since 4 days following an attack by a dog. On observation pain was evident on palpation, no crepitation noticed, limited flexion and extension noticed, the animal was showing non weight bearing lameness on the left forelimb. On radiography luxation of elbow joint was noticed (Fig 1). It was decided to reduce the elbow dislocation by non-rigid external skeletal fixation of joint.

3. Treatment

The cat was prepared for surgery under aseptic conditions, sedated with Inj. xylazine @ 0.5mg/kg B.W and Inj. ketamine @ 20mg/kg B.W administered intra-muscularly (Arnbjerg, 1979) [2]. Under aseptic condition a stab incision was made on the lateral aspect of the elbow, k-wire of size 2 mm was transfixed on the distal quarter of humerus perpendicular to long axis of bone (Fig.2). Second wire was placed parallel to the first one in the center of olecranon on the proximal aspect of bone allowing both side wires to protrude one centimeter at side (Fig.3). The pins were fixed externally by elastic band in shape of eight with enough tension to keep the elbow in extension and allow good range of motion (Fig 4), (Schwartz, 2008) [1]. The bands were secured at the bottom and top with rubber corks to prevent the slippage and to prevent tension of band, friction on the skin. The external fixation was secured with adequate padding and a crepe bandage. Postoperatively Inj. Amoxicillin & potassium clavulanate @ 10 mg/kg body weight was administered I.M. and Inj. Meloxicam @ 0.2 mg/kg body weight administered I/M on the day of surgery.

Tab. Amoxicillin & postassium clavulanate @ 10 mg/kg body weight administered orally twice daily for 5 days and Tab. Serratiopeptidase 5mg orally once a day for 5 days along with

multi-vitamin syrup. The elastic bands and bandages were changed on the 7th postoperative day and maintained for 2 weeks postoperatively.



Fig 1: Preoperative radiograph showing Elbow dislocation



A

B

Fig 2: Postoperative radiograph antero-posterior view (A) and lateral view (B) with corrected elbow joint

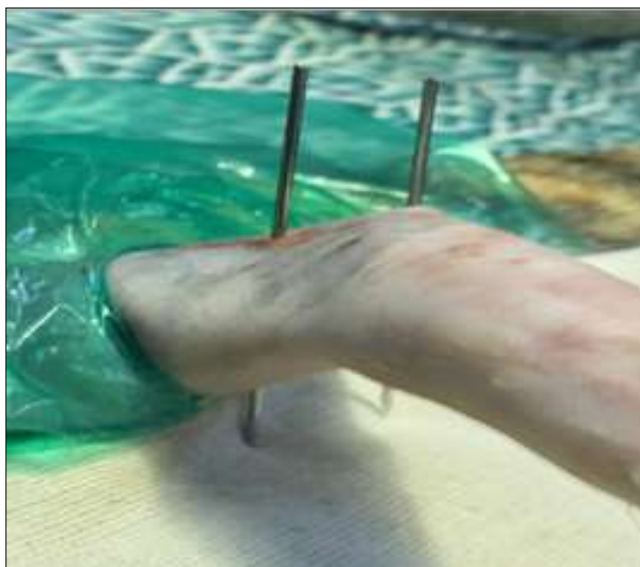


Fig 3: Trans fixation of K-wire at the elbow joint



Fig 4: Flexible external fixator at Left elbow joint

4. Result and Discussion

The animal was able to bear weight on the limb by 14th day, the rubber corks, elastic bands, pins were removed on the 14th day and the pin entry site was protected with povidone iodine. The limb was immobilized with crepe bandage which was changed once in a week for 3 weeks. In the present case, the cat recovered and was able to bear weight on the limb from 3rd week. The external fixation technique used in this case, permitted weight bearing and joint motion soon after surgery. Minimize loss of bone mineral content and muscle mass. It was a minimally invasive and cost effective technique. The fixator provided adequate range of motion and return to function of the joint was early (Schwartz, 2008) ^[1] in the present case. As the technique is a closed reduction process, the fixator was effectively retained and well tolerated by the animal (Marcellin, 2003) ^[6].

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6. Conflict of Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and / or publication of this article.

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