

TRAUMATIC ELBOW LUXATION IN CATS

Mehmet SAĞLAM¹, Pınar CAN¹, Abdurrahim FADIL¹

¹ Department of Surgery, Faculty of Veterinary Medicine, Ankara University, Dışkapı 06110 Ankara.

Abstract:

Traumatic elbow joint luxation is rarely seen in cats. Most luxated elbows can be reduced by closed manipulation if treated within the first few days after injury. Open reduction of a luxated elbow is indicated when it is impossible to achieve closed reduction or if the joint and muscle contractures occurs. One year old intact male Angora cat (case 1), 1 year old intact domestic shorthair cat (case 2) and 4 years old intact domestic shorthair cat (case 3) with a history of 3, 7 and 10 days lameness respectively were subjected in this study. Traffic accident was the cause of luxation in all cases. Lateral elbow luxation was diagnosed due to clinical and radiologic examination of the cats. In case 1 and 2, luxation was treated with open reduction approach. In case 3, open reduction was performed but 2 days postoperatively reluxation of the joint occurred because of the bandage failure. Case 3 was reoperated, caput radii and humeral condyl were drilled, a cerclaj wire was passed through the drill holes and around the olecranon, then cerclaj was anchored. Lateral and medial collateral ligaments were replaced with cerclaj wire with this technique. Splinted bandage was applied as the elbow joint in extension position for 3 weeks postoperatively in all cases. After removal of the bandage, patients' clinical complaints were completely solved. When the closed reduction is unsuccessful for the treatment of traumatic elbow luxation or in chronic cases, open reduction is found satisfactory.

Keywords: Cat, elbow joint, luxation, operation, trauma,

Introduction

Traumatic elbow joint luxation is the displacement of one or more bones forming the elbow joint due to blunt trauma (6). Because of the displacement of the bones, the normal anatomical contact of the articular surfaces of the relevant bones is disrupted (2). The large medial condyle of the humerus mostly blocks the medial luxation of the Radius-ulna, so usually the lateral luxation is seen (1,4,6). Any age or breed of dog may be affected, although traumatic elbow luxation is rare in cats (4,6).

The history usually includes trauma, mostly a vehicular accident. In addition to this, it can also be caused by falling from high and cat-dog fights. The angle of the joint should be 45° or less at the time of trauma in order to allow luxation of the elbow joint without fracture (1,2).

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Clinical finding is that the animal is unable to bear weight on the affected limb and the elbow is carried in a flexed position. Palpation of the elbow reveals pain, crepitation, swelling of the joint and the resistance to flexion and extension. Two-planes radiography should be used for definite diagnosis (2,6).

Most luxated elbows can be reduced by closed manipulation if treated within the first few days after injury. (4,5). Closed reduction should be performed under general anesthesia (4,5,6). The elbow joint is brought to the flexion position at an angle of 100-110° and the medial rotation of the radius-ulna is performed. After the anconeal process hooks over the lateral condyle, elbow is extended slightly. Then flexed while medial pressure on the radial head is continued. With pronation the radial head can be forced under the capitulum humeri, especially with abduction of the elbow. A straight craniocaudal radiograph of both elbows for comparison is necessary to ascertain full reduction (3,6). Open reduction of a luxated elbow is indicated when it is impossible to achieve closed reduction or if the joint and muscle contractures occurs (2,6). Following the general anesthesia, lateral approach to the joint is performed. A curved elevator is used for reduction. The elevator is placed under the humerus with the convex side facing upwards, inverted and pressed downwards to provide reduction of the joint. Care should be taken not to injure the joint cartilage when performing these procedures (2). Osteotomy of olecranon can be performed, if the tension created by the triceps brachii prevents the reduction (2,3,6). Also myotomy of the triceps brachii muscle can be carried out for preventing the tension (2). In cases where it is not possible to repair the ruptured collateral ligaments observed during the operation, it can be replaced with two screws which are placed to lateral condyle of the humerus and caput radii and a figure-eight wire (2,4,6).

After surgery, the limb should be positioned with the elbow in extension and supported with a soft padded splinted bandage for 1-3 weeks (3,6). After removal of the bandage, passive range of motion should be performed daily, but exercise should be limited for 3 to 4 weeks (3, 6).

In this study, clinical and operative results of elbow luxation treatment in three cats are presented.

Material and Methods

One year old intact male Angora cat (case 1), 1 year old intact domestic shorthair cat (case 2) and 4 years old intact domestic shorthair cat (case 3) with a history of 3, 7 and 10

days lameness respectively were subjected in this study. Traffic accident was the cause of luxation in all cases. In all cases, luxation was treated with open reduction approach. In case 3, two days postoperatively relaxation of the joint occurred because of the bandage failure. Case 3 was reoperated, the tension of the triceps brachii prevented the reduction so myotomy of the triceps brachii was performed. Then caput radii and humeral condyl were drilled, a cerclaj wire was passed through the drill holes and around the olecranon, then cerclaj was anchored. Lateral and medial collateral ligaments were replaced with cerclaj wire with this technique. Splinted bandage was applied as the elbow joint in extension position for 3 weeks postoperatively in all cases.

Results

Lateral elbow luxation was diagnosed due to clinical and radiologic examination of the cats. In case 1 and 2 open reduction was successful (Fig. 1), but in case 3 relaxation of the joint occurred because of the bandage failure. After the second operation of case 3, no complication was seen (Fig. 2). After removal of the bandage, patients' clinical complaints were completely solved. There was no complication in none of the cases with a 2 months follow up period.

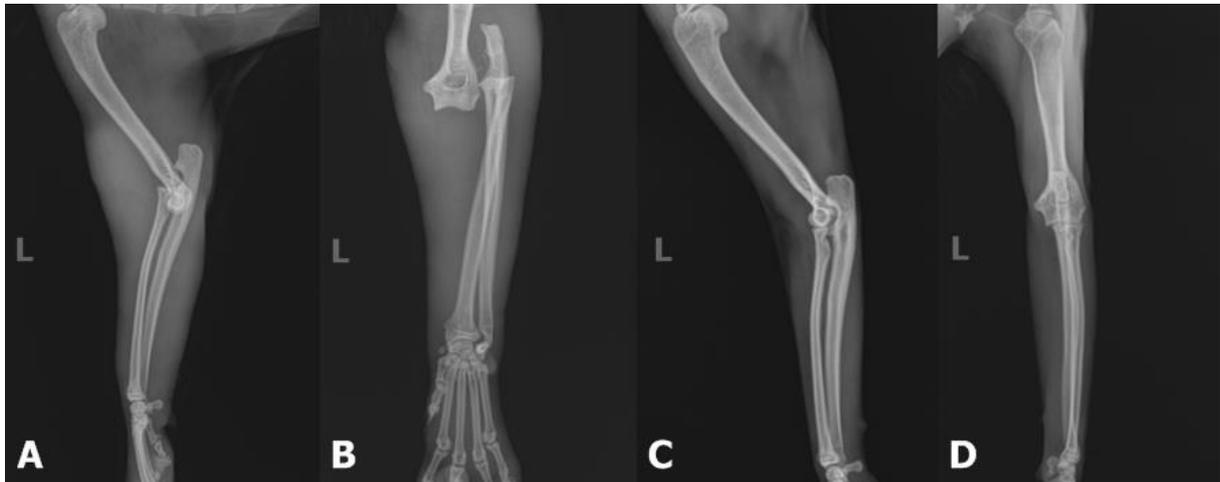


Fig. 1. Preoperative (A,B) and postoperative 3rd week (C,D) radiographs of the case 1.

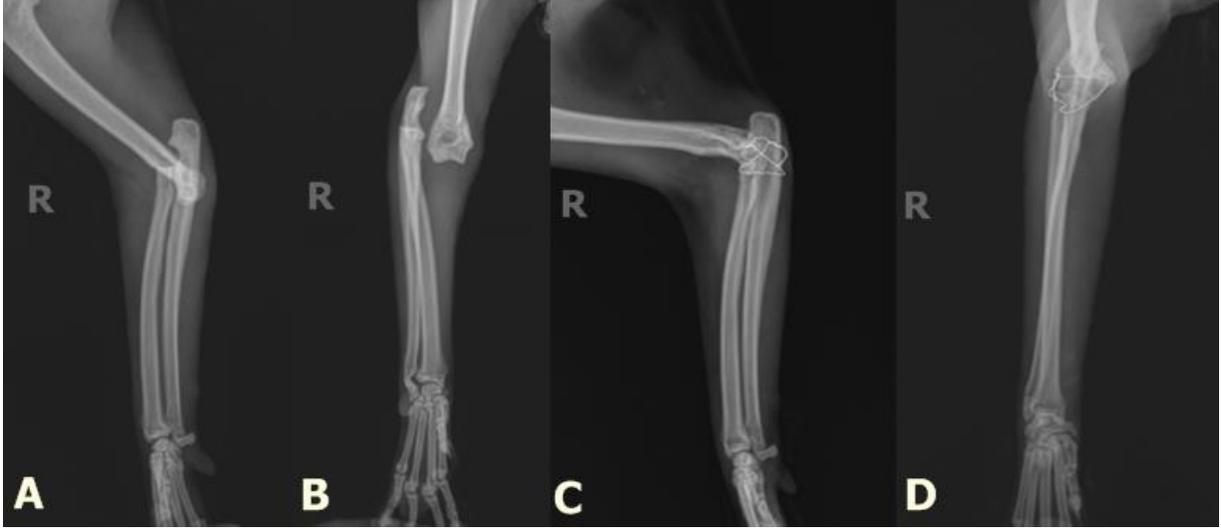


Fig. 2. Preoperative (A,B) and postoperative radiographs of the case 3 (C,D).

Discussion and Conclusion

Dislocations of the elbow joint can occur congenitally or due to traumatic causes (2,3,4). Traffic accident was the cause of the luxation in all cats. The clinical findings of the patients were in accordance with previous literature. Two-plane radiography was used as suggested for definitive diagnosis in all cats (2,4). The lateral luxation of the elbow is mostly seen due to the fact that the medial condyle of the humerus is wide (1,4,6). Lateral luxation of the elbow was seen in all cats which are subjected in this study.

In all cases luxation was chronic, so open reduction was chosen as surgical treatment. In case 1 and 2 it was easy to achieve reduction despite the contraction of triceps brachii,, but case 3 myotomy of the this muscle was needed for performing the reduction. There was no complication related to the myotomy of the muscle in this case.

In conclusion, when the closed reduction is unsuccessful for the treatment of traumatic elbow luxation or in chronic cases, open reduction is found satisfactory.

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Address for correspondence

Assoc.Prof.Dr. Mehmet SAĞLAM
Ankara University
Faculty of Veterinary Medicine
Department of Surgery
06110 ANKARA

e-mail: saglam45@gmail.com