



## Dislocation of the Os Carpi Radiale in a Dog

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**Abstract:** In this report, we aimed to present our colleagues the phenomenon of dislocation of the os carpiradiale, which is rarely seen in dogs. A 10-year-old, spayed male Terrier was referred to the Animal Hospital of Near East University, TRNC, with the anamnesis of having lameness of the right front limb. Clinical examination of the right carpus showed soft-tissues swelling, pain on motion of the carpal joint. Medio-lateral and dorso-palmar radiographs of the right carpus determined dorsopalmar luxation of the radiocarpal bone. Open reduction was performed under general anesthesia with Xylazine (1 mg/kg IM) and Ketamine (10 mg/kg IM). In 4 weeks after postoperative clinical examination, the carpal joints and walking was seen normal. Mediolateral and dorsopalmar radiographs of the os carpiradiale was determined to have occurred repositioning.

**Keywords:** Dislocation, Dog, Open reduction, Os carpi radiale, Splint bandage.

## Bir Köpekte Os Carpi Radiale Çıkığı

**Öz:** Köpeklerde ender olarak rastlandığı bildirilen os carpiradiale çıkığı olgusunu ve operatif sağaltımını meslektaşlarımıza sunmayı amaçladık. 10 yaşlı, kastre erkek, Terrier ırkı köpek sağ bacakta topallık anamneziyle Yakın Doğu Üniversitesi Hayvan Hastanesine getirildi. Klinik muayenede sağ karpal eklemden şişlik, eklem hareketinde ağrı görüldü. Mediolateral ve dorsopalmar radyografide, radiokarpal kemiğin dorsopalmar luksasyonu belirlendi. Ksilazin (1mg/kg, İM) ve Ketamin (10 mg/kg, İM) genel anestezisi altında açık redüksiyon uygulandı. 4 hafta sonra yapılan klinik muayenede, karpal eklem ve basışın normal olduğu görüldü. Mediolateral ve dorsopalmar radyografide; os carpiradiale'nin repozisyonunun gerçekleşmiş olduğu izlendi.

**Anahtar Kelimeler:** Açık redüksiyon, Çıkık, Köpek, Os carpi radiale, Splint bandaj.

## INTRODUCTION

Luxation of the radiocarpal bone is rare condition that possible following a jump or fall in the dogs and cats (1-5). The radiocarpal bone pivots 90 degrees medially and in a dorsopalmar direction, coming to rest against the distopalmar rim of the radius. It is emphasized that dislocation usually caused by hyperextension, pronation and supination (6).

The radiocarpal bone can often be reduced closed if seen soon after injury. Functional stability is unlikely to result in large-breed dogs, because of damage to the radial collateral ligaments. Although splint fixation for a few weeks may well be justified in a toy-breed or small-breed dog, many patients will require surgical stabilization. At surgery the bone relocated and it may be secured in position by placement of a Kirschner wire, or bone screw, through the radialcarpal bone and into the ulnocarpal bone (7).

## CASE REPORT

A 10-year-old, spayed male Terrier was referred to the Animal Hospital of Near East University, TRNC, with the anamnesis of having lameness of the right front limb following fall from the first floor of a building. Clinical examination of the right carpus showed soft-tissues swelling, pain on motion of the carpal joint. Palpation of dorsal aspect of carpus determined a depression just distal to the radius. Medio-lateral and dorso-palmar radiographs of the right carpus showed dorso-palmar luxation of the radiocarpal bone. Dislocation of the radiocarpal bone on the ulnocarpal bone surface were seen a fragment of approximately 3 mm in diameter. It's caused by avulsion of the intercarpal ligament and thought to have originated from the ulnocarpal bone. In the

ulnar styloid was identified a fragment of approximately 8 mm separated by an oblique fracture line (Figure 1).



**Figure 1.** Pre-operative radiological image of the right carpal joint; a) the os carpi radiale dislocation and fracture line in the ulnar styloid (arrow), b) dorsopalmar placement of the os carpi radiale (arrow).

**Şekil 1.** Sağ karpal eklemin preoperatif radiolojik görüntüsü; a) os carpi radiale çıkığı ve ulnar stiloidde kırık hattı (ok), b) os carpi radiale'nin dorsopalmar yerleşimi.

Closed reduction of the luxation was performed under general anesthesia with Xylazine (1 mg/kg IM) and Ketamine (10 mg/kg IM), but not successful and it was decided to open reduction of the radiocarpal bone. In open the reduction, was found to be the os carpiradiale which came from a horizontal position to a vertical position and laterally dislocated as window shutters. This dislocation of the degree of reduction was found to block off. Following the os carpiradiale placed instead brought to its normal anatomic position (Figure 2).



**Figure 2.** Intraoperative images of the right carpal joint; a) Depending on the radiocarpal bone dislocation gap formed, b) repositioning the radiocarpal bone c) With simple suture closure of the joint capsule and postoperative radiological image of the right carpal joint.

**Şekil 2.** Sağ karpal eklem intraoperatif görüntüleri; a) os carpi radiale çıkığına bağlı oluşan boşluk, b) radiokarpal kemiğin repozisyonu c) eklem kapsülünün basit ayrı dikiş ile kapatılması ve sağ karpal eklem postoperatif radyolojik görüntüsü.

The joint capsule was closed with simple separate suture. Including its limbs PVC splint bandage was applied up to the elbow joint. Skin sutures were removed ten days. The splinting bandage application was continued until the thirtieth day ten days apart. Because insufficient clinical improvement was detected and terminated bandage application, but recommended to restrict movement of fifteen days. At the end of this period it was observed that clinically realized a good functional recovery and termination controls. Four weeks later in mediolateral and dorsopalmar radiographic examination; os carpiradiale were observed to have taken place in repositioning. In clinical examination, the carpal joints and walking was seen normal. Carpal medial collateral ligament of the distal insertion point on the radius was occurred approximately 2 mm an osteophyte and resorption was observed in the fracture line of the ulnarstyloid (Figure 3).



**Figure 3.** Image of the normal angle of the carpal joint on the postoperative fourth week and radiological image of the right carpal joint; a) postoperative fourth week b) postoperative eighth week.

**Şekil 3.** Postoperatif 4. haftada normal açıdaki karpal eklem görüntüsü ve sağ karpal eklem radyolojik görüntüsü; a) postoperatif 4.hafta, b) postoperatif 8.hafta.

#### DISCUSSION and CONCLUSION

Two methods are recommended for carpal dislocations: Closed reduction that is more than a chance of success in small breed dogs and open reduction (6,7). In this case, although the radiocarpal bone attempted closed reduction, repositioning the

radiocarpal bone is not easy due to the placement. For this reason, open reduction was applied.

After the radiocarpal bone replaced with open reduction, stabilization can be achieved Kirschner wires or bone screws (6,8,9). Also can be used in the techniques of carpal or pancarpal arthrodesis (9-12). Potential postoperative complications of carpal or pancarpal arthrodesis application; irritation of the soft tissues, sepsis, relaxation bone plates and permanent lameness (9,10). It has been reported that using transarticular fixation, screws and wire performed in arthrodesis applications after the sixth week postoperatively may develop secondary osteoarthritis (10). In another study reported that although the conservative treatment with closed reduction is stated to be degenerative changes (5,10). In our study, PVC splinting bandage was applied for one month after the rejection of the os carpi radiale with open reduction. 8th week postoperative clinical and radiological examination has not founded any secondary complications. Clinically it was observed that the normal of the joint and movement.

In conclusion; according to the degree of dislocation in the os carpi radiale is not always possible closed reduction, and the joint forces closed reduction create new bone and soft tissue injuries that prevent joint functions. Therefore, in our case seem to confirm our view that the positive results obtained with open reduction and postoperative bandage application. We approved to present our colleagues the phenomenon of dislocation of the os carpiradiale, which is rarely seen in dogs and we found to examine in our clinic, and its operative treatment.

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