

What Is Your Diagnosis?

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CLINICAL HISTORY

A six month old mixed breed female dog, weighing 15 kg was presented to the clinic two days after being hit by a car. The dog was unable to stand without assistance but was alert with normal vital signs. Chest radiographs and abdominal ultrasonography did not reveal any abnormalities. The dog had a painful and swollen left elbow and pain on manipula-

tion of the left hip. Pelvic radiographs revealed craniodorsal luxation of the left femur associated with avulsion fracture of the femoral head. The left elbow radiographs are presented Figure 1. Make your diagnosis from Figure 1 and then turn the page.

WHAT IS YOUR DIAGNOSIS?

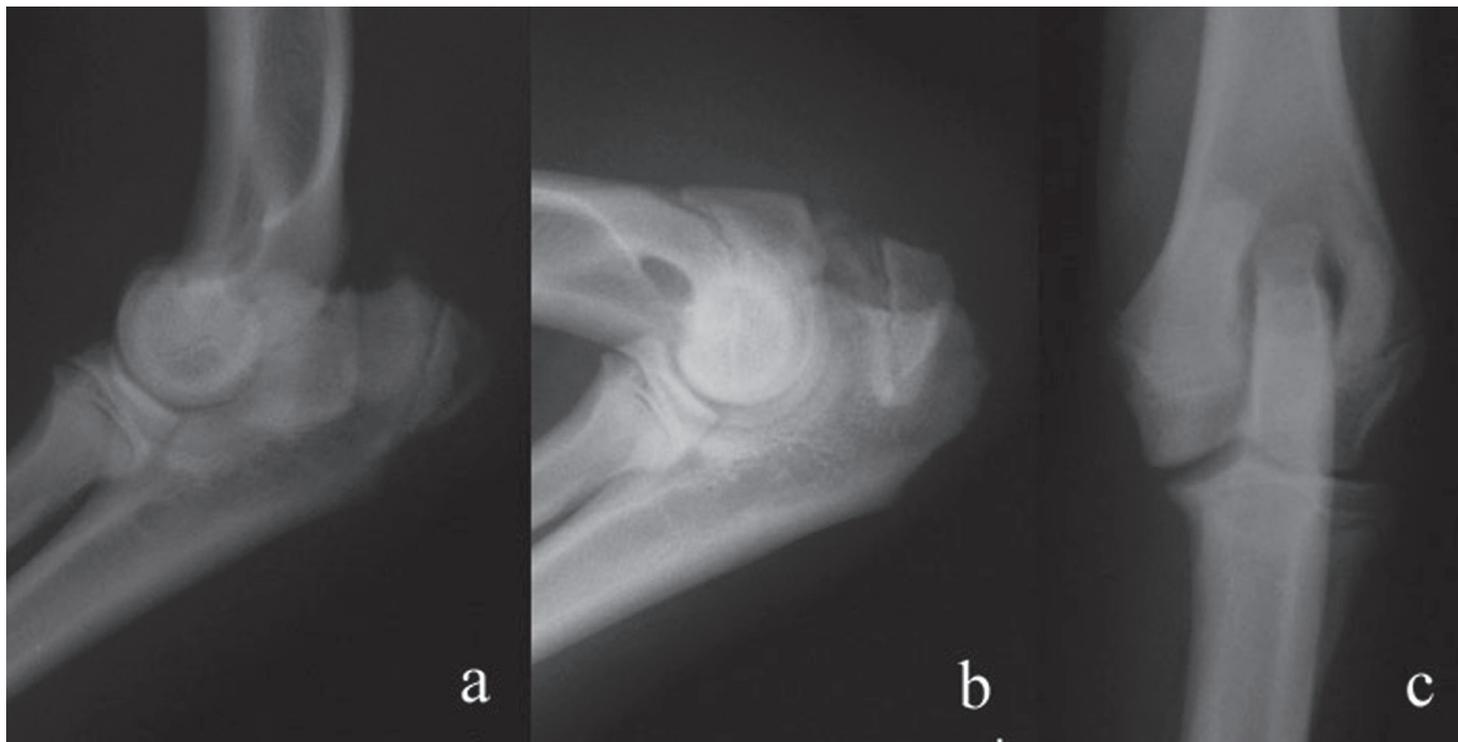


Figure 1: Left elbow. A: Mediolateral projections in a normal standing position; B: In flexion; C: Cranial-caudal projection.

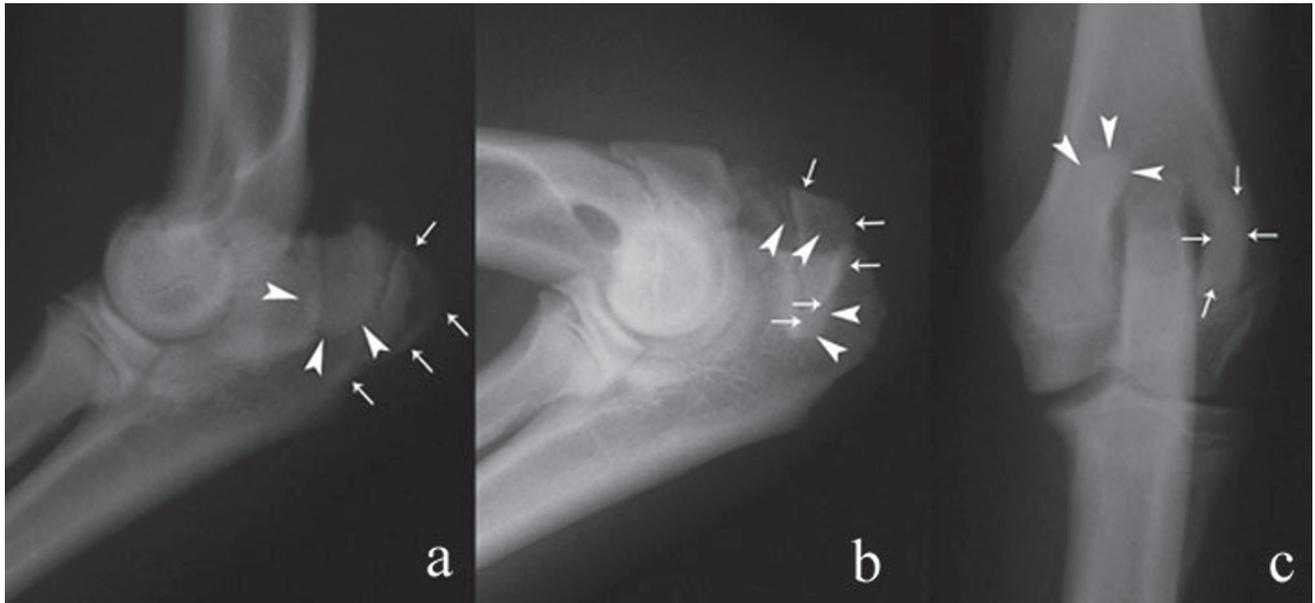


Figure 2: A and B: Mediolateral; C: Craniocaudal projections of the left elbow. Fractured bone fragments are outlined by arrows and arrows heads.

RADIOGRAPHIC FINDINGS AND INTERPRETATION

On the lateral projection, the proximal part of the olecranon is displaced slightly cranially and mostly superimposed on the non-displaced part of the olecranon (Figure 1A). Flexion of the elbow increased the cranial displacement of the fractured part relatively to the rest of the olecranon body and decreased its superimposition (Figure 1B). It is possible to see that the fractured portion of the olecranon consists of two bone fragments partially superimposed on each other and on the main portion of the olecranon (Figure 2A, B).

On craniocaudal projection of the left elbow, the proximal part of the olecranon appears shorter and more radiolucent than normal (Figure 1C). Two bone fragments superimposed on the lateral and medial humeral epicondyles are seen laterally and medially to the olecranon (Figure 2C).

RADIOLOGICAL DIAGNOSIS

Comminuted extrarticular fracture of the proximal olecranon. The transverse fracture line was distal to the physis at least in one bone fragment and the fractured portion of bone was essentially split into two parts in a sagittal plane.

TREATMENT AND OUTCOME

At surgery, two bone fragments belonging to the fractured tuber olecrani were identified laterally and medially to the main body of the olecranon. Each fragment was attached to the body of the olecranon by two Kirschner wires. Compression of the fracture lines between the fragments and the main body of olecranon was achieved by two separate tension band wires (Figure 3).

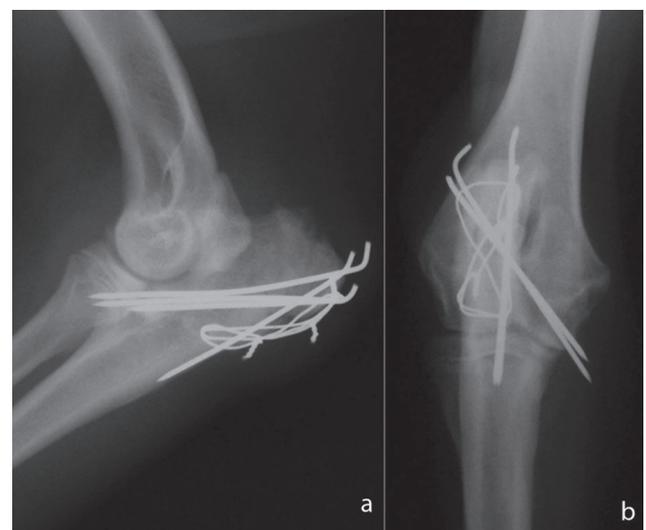


Figure 3: Mediolateral and craniocaudal projections of the left elbow four weeks after fracture repair.

The fractures healed uneventfully within four weeks and all implants were removed. The physis of the proximal ulna was however closed. Nevertheless, the dog had no functional problem during 6 months follow-up.

DISCUSSION

Fractures of the proximal ulna are not uncommon in dogs. In a survey of 284 canine fractures, five affected the olecranon (1). Because fractures of the proximal ulna may be either intra-articular or may disrupt the insertion of the triceps tendon, their treatment requires precise anatomical reduction and rigid internal fixation.

In skeletally immature animals fractures of the proximal ulna may also involve growth plate. However, proximal ulnar physis contributes only to olecranon length and is usually not significant relative to premature physal closure anomalies (2).

It is important for surgeons to be familiar with various fractures of this area and the different methods of fixation. Most reported fractures of the proximal ulna are intra-articular with a significant portion of them comminuted and

sometimes accompanied by radial head luxation (3, 4). To the best knowledge of the authors extra-articular fractures of the proximal ulna reported so far were simple olecranon fractures (3, 5). This report describes a rare comminuted extra-articular proximal ulna fracture and its radiographic features. Familiarity with this kind of fracture will assist surgeons in their preoperative preparation and planning.

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