A 4-year-old domestic shorthair spayed female cat was brought to the emergency clinic after a 4-story fall (approx 35 feet). Immediately after the fall, the owners reported seeing the cat walking without lameness. Two years prior, the cat had fallen from a similar height and had been severely injured. On initial evaluation, a traumatic cleft palate and a mild right forelimb lameness were noticed. Signs of pain were elicited on palpation of the right carpus. Thoracic radiography revealed no abnormalities. Because of carpal swelling and continued signs of pain, radiographs of the right carpus were obtained with the patient anesthetized the following day (Figure 1).

Determine whether additional imaging studies are required, or make your diagnosis from Figure 1—then turn the page →

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Radiographic Findings and Interpretation

There is soft tissue swelling dorsal to the metacarpi and surrounding the carpus. On the mediolateral radiographic view, 2 bony structures are seen palmar to the proximal row of carpal bones and distal to the styloid process of the ulna (Figure 2). These 2 structures are of normal radiopacity and have a thin sclerotic rim on their rounded and sharply delineated borders. The space between the bony structures is of even width. A small triangular bone chip is located at the palmarodistal aspect of the dorsal portion of the accessory carpal bone, a small triangular bone chip is visible (arrowhead). Pericarpal soft tissue swelling is present.

Figure 2—Same mediolateral radiographic image as in Figure 1. In place of the accessory carpal bone are 2 smoothly contoured bony structures. Their combined shape and size differ from those of a normal accessory carpal bone. The basilar portion (black arrows) and apical portion (white arrows) are indicated. At the palmarodistal aspect of the more dorsally located portion of the accessory carpal bone, a small triangular bone chip is visible (arrowhead). Pericarpal soft tissue swelling is present.

A mediolateral radiographic view of the contralateral (ie, left) carpus of the same cat as in Figure 1. Substituting the accessory carpal bone are 2 bony structures with rounded edges, separated by a gap of even width, similar to the right forelimb (arrows). The IV catheter and ECG pad are visible on the dorsal and palmar aspects of the paw, respectively.

Figure 3—Mediolateral radiographic view of the contralateral (ie, left) carpus of the same cat as in Figure 1. Substituting the accessory carpal bone are 2 bony structures with rounded edges, separated by a gap of even width, similar to the right forelimb (arrows). The IV catheter and ECG pad are visible on the dorsal and palmar aspects of the paw, respectively.

Treatment and Outcome

The patient was discharged with instructions for rest as well as 5 days of administration of NSAIDs and...
antimicrobials. According to its owner, mild lameness lasted another 2 to 3 days. Three months later, the cat was reported to be free of clinical signs.

Comments

The accessory carpal bone is an oblong bone located on the palmar aspect of the carpus. The feline accessory carpal bone, like that of dogs, is composed of 2 ossification centers, the body and the epiphysis, the fusion of which in cats is normally complete at 7 months. Injury to the accessory carpal bone in animals is most often the result of hyperextension, such as is associated with Greyhound racing. In people, on the contrary, direct blows to the pisiform bone (which corresponds to the accessory carpal bone) and not avulsion or tension injuries are reported to be the most frequent cause of pisiform fracture. Fractures of the accessory carpal bone are rare in cats, and fracture fragments are in most cases very small. Five types of accessory carpal bone fractures have been recognized in dogs: an intraarticular distal basilar fracture resulting in the avulsion of the origin of the accessoriolunate ligament (type 1), an intraarticular proximal basilar avulsion fracture (type 2), a distal apical fracture resulting in the avulsion of the origin of the accessoriotrapeziometacarpal ligament (type 3), a proximal apical avulsion fracture of the flexor carpi ulnaris muscle (type 4), and comminuted fractures (type 5). Not only do findings in the present case not correspond with these described accessory carpal bone fracture types, but the smooth congruent contours of the 2 bones and the absence of instability made an acute fracture seem less likely.

In people, criteria have been established for bipartite scaphoid bones, which include no history of trauma, sharply defined bone edges with narrow joint-like spaces in between, normal radiopacity of both bone parts, different sizes being possible, and no bone sclerosis or evidence of osteoarthritis. Bipartite bones have been reported in several animal species and in several locations, including the equine navicular bone, equine proximal sesamoid bones, and canine metacarpophalangeal sesamoids. The existence of true bipartite patellae is disputed both in cats and in people, likely in part because it may be impossible to distinguish them from chronic fractures with histologic evaluation.

On the basis of the criteria established for humans, the bilateral symmetric findings in this cat suggest a bipartite accessory carpal bone. However, the history of repeated high-rise trauma is a confounding factor for the cat of the present report.