

## WHAT IS YOUR DIAGNOSIS

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### *Signalment*

A 7-month-old male Domestic Short Hair cat

### *History*

The cat was bitten by another cat 3 weeks earlier. He was lame on the left hind limb. There was a localized soft tissue swelling of the left tarsal joint area. A small bite wound with small amount of purulent exudates was observed after shaving.

### *Clinical Examination*

When the left metatarsal area was palpated, the cat was painful. Bone crepitation could not be detected. Mild swelling of the left popliteal lymph node could be found.

### *Radiographic Examination*

Mediolateral and dorsoplantar radiographs of talocrural and tarsal joints were taken to assess radiographic changes of bones and soft tissue.



(1)



(2)

**Figure 1, 2** Mediolateral and dorsoplantar radiographs of talocrural and tarsal joints

Give your diagnosis and turn to the next page.

### **Radiographic findings**

Mediolateral radiograph (Figure 1) reveals a thick smooth periosteal new bone deposition on both cranial and plantar surface of the proximal portion of the metatarsal bone. A small radiolucent area is noted at the proximal one-third of the metatarsal bone in Fig 1, which is the same well-circumscribed lesion on the lateral surface of metatarsal bone of the third digit in the dorsoplantar radiograph (Figure 2). Lesion of metatarsus is therefore an indicative of a localized destroyed bone cortex.

### **Radiographic diagnosis**

Chronic osteomyelitis

### **Discussion**

Osteomyelitis is an inflammation of bone and marrow which is usually caused by bacterial infection. Bone infection in cats may develop from one of four basic routes of contamination consisted of 1)

hematogenous route, 2) contiguous source, 3) postoperative infection and 4) direct implantation. The direct implantation or deep puncture is commonly caused by bite wounds. If the wound reaches the periosteal surface, it may deposit bacteria on or within the bony tissue, resulting in infection.

Many radiographic signs can be used to classify duration of bacterial bone infection; acute, subacute or chronic. An acute stage, radiographs are usually noted only soft tissue swelling surrounding the fracture site without any periosteal bone deposition. On subacute stage, radiographs may present an irregular subperiosteal bone deposition, cortical bone lysis and increasing medullar density that result in endosteal bone deposition. On chronic stage, radiograph may reveal a thick periosteal new bone formation (involucrum) which completely enveloping infected chip bone (sequestrum) in some cases. A large fracture gap and excessive callous formation may appear away from the fracture site.



**Figure 3** Close-up mediolateral radiograph shows the thickness, contour and density of the new bone deposition (white arrows)



**Figure 4** Close-up dorsoplantar radiograph indicates focal bone destruction (white arrow) with surrounding new bone deposition

### **References**

Farrow, C.S. 2003. Osteomyelitis. The Limbs. In: Radiology of the Cat. St. Louis, Missouri: Mosby. 305-312.