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Radiographic Evidence of Osteomyelitis

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A 40-year-old male with human immunodeficiency virus (currently, CD4 171) presented to our emergency department (ED) with pain and swelling in the left third digit of 3 to 4 weeks' duration. He noticed the swelling after a fist fight that resulted in compression of his ring on the finger. He did not report any history of fever, bleeding, or discharge. Upon arrival to the ED, the ring was removed with a cutter. On examination, he had a digit that was sausage shaped in neutral position with no blood or purulence (see Figure 1). Movement was significantly limited by pain, sensation was decreased, and capillary refill was delayed. Radiographic imaging with plain film was performed and a complete blood count was obtained (see Figure 2).

The radiograph (Figure 2) confirmed periosteal reaction in the cortex of the proximal third phalanx, concerning for osteomyelitis. The diagnosis of osteomyelitis was confirmed by magnetic resonance imaging during hospital admission. The patient began a 6-week course of Ertapenem to cover for the polymicrobial nature of the infection. Osteomyelitis is an

infection of the bone. Early and accurate diagnosis is important, since it requires long-term antibiotic therapy and should be considered for patients with signs of infection with bone pain. In osteomyelitis, inflammatory exudate in the marrow leads to increased intramedullary pressure, with extension of exudate



Figure 1. Photograph of the patient's hand on the day he presented to the emergency department after his ring was removed.



Figure 2. Radiograph of the patient's hand demonstrating periosteal elevation consistent with osteomyelitis.

into the cortex. This splits the periosteum, leading to loss of blood supply and resulting in necrosis.¹ The resulting dead bone (sequestrum) is visualized on radiographs.¹ New bone formation (involucrum) around damaged periosteum can also be seen radiographically, but might not be seen early in the course of the disease.¹

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