Disseminated Cryptococcal Osteomyelitis to the Hand in an Immunosuppressed Lymphoma Patient

Wayne A. Chen, MD,* Cynthia L. Emory, MD,* Benjamin R. Graves, MD*

Fungal osteomyelitis of the hand is rare with limited evidence-based literature to guide diagnosis and management. We report a case of disseminated cryptococcal osteomyelitis in the middle phalanx from a pulmonary fungal infection in a patient with a history of lymphoplasmacytic lymphoma. Although rare, cryptococcosis should be considered in the differential diagnosis of aggressive lytic lesions with bone pain and associated large soft tissue masses, especially in the immunosuppressed host. *(J Hand Surg Am. 2018;43(3):291.e1-e6. Copyright © 2018 by the American Society for Surgery of the Hand. All rights reserved.)*

Key words Cryptococcosis, fungal, immunosuppression, osteomyelitis, phalanx.

Online Exclusive

FUNGAL OSTEOMYELITIS IS RARE with limited evidence-based literature to guide treatment.[1] This makes diagnosis and management challenging, especially in the immunosuppressed patient population. *Cryptococcus neoformans* is a ubiquitous fungus that usually causes pulmonary infection and meningitis in immunocompromised hosts.[2] However, it has been seen in human immunodeficiency virus (HIV)-negative patients without apparent immune deficiency,[3] with an overall 27% mortality rate.[4] There is little published regarding patient characteristics and clinical features of cryptococcal osteomyelitis. Given the high mortality rate, early and correct diagnosis is paramount for a favorable outcome. We present a case of disseminated cryptococcal osteomyelitis in the middle phalanx from pulmonary fungal infection.

*From the *Department of Orthopaedic Surgery, Wake Forest Baptist Medical Center, Winston-Salem, NC.*

Received for publication July 29, 2016; accepted in revised form July 13, 2017.

No benefits in any form have been received or will be received related directly or indirectly to the subject of this article.

Corresponding author: Benjamin R. Graves, MD, Department of Orthopaedic Surgery, Wake Forest Baptist Medical Center, Medical Center Boulevard, Winston-Salem, NC 27157-1070; e-mail: bgraves@wakehealth.edu.

0363-5023/18/4303-0022$36.00/0
http://dx.doi.org/10.1016/j.jhsa.2017.07.013

CASE REPORT

A 63-year-old, right hand—dominant man with a history of Waldenstrom macroglobulinemia (also known as lymphoplasmacytic lymphoma) after chemotherapy presented to the Orthopaedic Oncology clinic for evaluation of a left leg mass present for several months and a mass that had been in the right middle finger for the past month. He denied pain from the leg mass. However, the middle finger mass was painful and progressively enlarging, and had developed atraumatic bruising the week before presentation. He denied systemic symptoms such as fevers, chills, night sweats, malaise, or unintended weight loss, but reported a 1-week history of cough and pleuritic chest pain. A review of the medical records revealed that he had a recent history of pneumonia that initially improved with antibiotics but had recurred in the past week. He denied a history of smoking, alcohol, or recreational drugs.

On physical examination, he was afebrile and hemodynamically stable without palpable lymphadenopathy. His right upper extremity had normal neurologic function. There was a tender, compressible mass of the middle finger middle phalanx with erosion through the dermis, but without expressible material (Fig. 1). The flexor and extensor tendons of the middle finger were intact. The metacarpophalangeal,

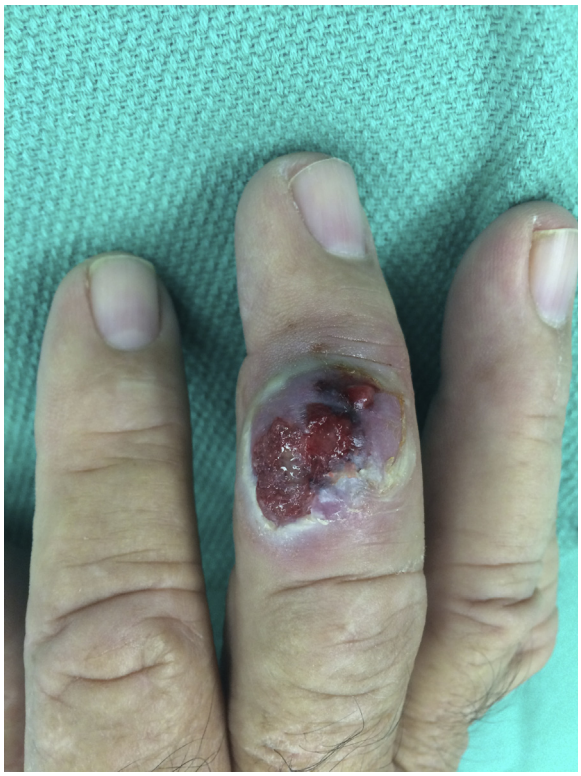

FIGURE 1: Preoperative clinical photograph of 3 × 2-cm soft tissue mass on the dorsal radial aspect of the right middle finger middle phalanx. This mass was boggy with overlying skin breakdown and surrounding erythema and ecchymosis.

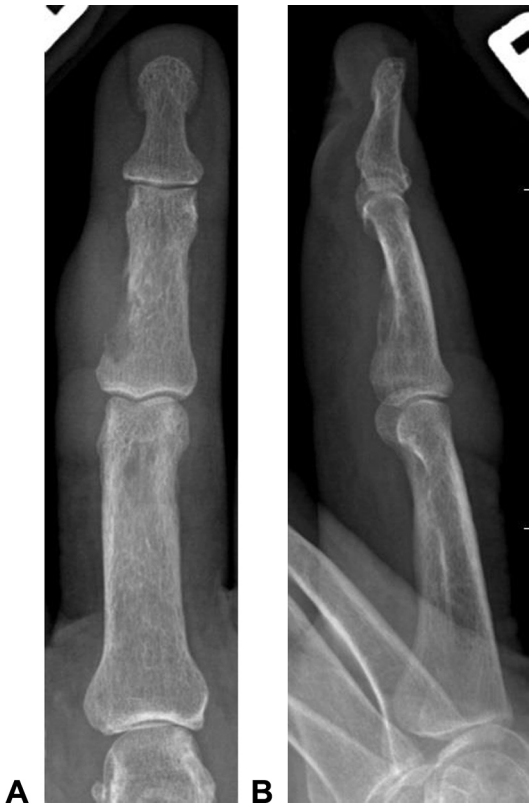

FIGURE 2: Plain radiographs showed **A** soft tissue swelling and **B** diaphyseal cortical erosion of the radial aspect of the right middle finger middle phalanx.

proximal interphalangeal, and distal interphalangeal joints were stable with normal range of motion. The left lower extremity was neurologically intact with a nontender soft tissue mass of the anterior distal third of the tibia.

Plain radiographs showed soft tissue swelling with cortical erosion of the middle finger middle phalanx (Fig. 2A, B) and geographic well-defined lytic lesions within the anterior cortex of the tibia. Magnetic resonance imaging revealed an aggressive-appearing osteolytic soft tissue mass of the middle finger middle phalanx that was intermediate-intense on T2-weighted images (Fig. 3A, B) and a small focal T2 hyperintense lesion involving the anterior cortex of the distal tibia. Previous chest radiographs taken for the recent diagnosis of pneumonia showed bilateral upper lung opacities. Review of a chest computed tomography obtained by his primary care provider demonstrated multiple pulmonary nodules bilaterally concerning for metastatic disease or infection.

Based on the patient's age (over 40 years), history (lymphoma, immunosuppression, and recurrent pneumonia), physical examination findings (ulcerative, fungating, and painful finger mass), and imaging

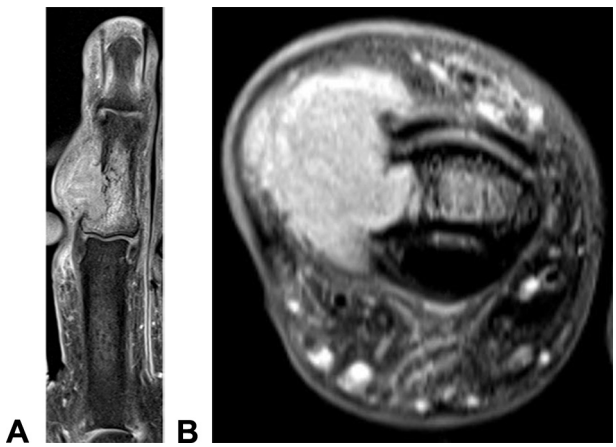

FIGURE 3: Magnetic resonance imaging scan **A** with and **B** without contrast showing a hypointense T1, intermediate-intense T2, minimally enhancing, osteolytic soft tissue mass measuring 1.7 × 1.2 × 1.4 cm with intervening cortical destruction along the radial aspect of the right middle finger middle phalanx.

studies (aggressive osteolytic mass), further diagnostic workup was warranted. The differential diagnosis included pulmonary malignancy with bony metastasis, fungal osteomyelitis, tuberculosis/acid-fast bacilli