Osteomyelitis of the Thumb in a 21-Year-Old Chiropractic Patient: A Case Report

Richard E. Bechert, DC,[a] and Gary M. Guebert, DC, DACBR[b]

Abstract

Objective: The purpose of this case report is to describe the presentation of a patient with osteomyelitis of the thumb.
Clinical Features: A 21-year-old man presented with painful, red, and edematous thumb pain over the anterior and posterior surface for a duration of 4 days. The patient reported no trauma or recent operation. The patient was treated conservatively for capsulitis. The patient's symptoms worsened within 2 days, and he was referred for additional imaging consisting of a bone scan. The bone scan showed increased uptake, resulting in a change of diagnosis to suspected osteomyelitis. The patient was referred to a medical doctor for care that consisted of antibiotics and physiotherapy.
Intervention and Outcome: Despite treatment, the patient had some mild permanent damage to the range of motion of the joint and soft tissue volume loss.
Conclusion: This case demonstrates the importance of considering osteomyelitis as a differential diagnosis. Amputation was avoided for this patient because of the early recognition and referral. (J Chiropr Med 2018;17:201-205)
Key Indexing Terms: *Chiropractic; Osteomyelitis; Thumb*

Introduction

Thumb pain is a common musculoskeletal condition. While it can have multiple etiologies, the common causes include trauma, osteoarthritis, and tendinosis. Other less frequent causes are fractures and rheumatological diseases.[1,2] Osteomyelitis is not a common presentation in clinical practice. The most common cause of osteomyelitis of the metacarpal and phalangeal bones is posttraumatic (57%), followed by postoperative (15%), hematogenous (13%), spread from contiguous infection (9%), and unidentified (6%).[3] The rate of osteomyelitis in adults is 2.6 per 100 000 person-years in the United Kingdom and is nearly equal in males and females. The incidence is lowest in the 30 to 44 age group, followed by the 15 to 29 age group. The highest risk is in the 75 plus cohort, followed by the 65 to 74 age group.[4] The rate is higher in children.[5] Five percent of acute infections will become chronic, even with appropriate care.[6]

The most common pathogens depend on the patient's age. Staphylococcus aureus is the most common pathogen in acute and chronic hematogenous osteomyelitis in adults and children. Group A streptococcus, Streptococcus pneumoniae, and Kingella kingae are the next most common infectious organisms in children. Group B streptococcal infections are the most common organism in newborn infants. In adults, Staphylococcus aureus is the most common organism found in bone and prosthetic joint infections. There is a marked increase in methicillin-resistant Staphylococcus aureus.[7] Cultures of the osteomyelitic hands of 46 patients were positive in 74% and test gram positive in 35% mixed in 35%, 12% fungal and 3% mycobacterial. The overall amputation rate was 39% (18 of 46 patients). A delay in diagnosis is associated with an increased rate of amputation.[3] Early stage osteomyelitis can be difficult to diagnose because of the vague symptoms such as in this case. A delay of 4 days in diagnosis increases the risk of long term sequelae.[8] Adults typical present with pain and loss of motion of the joint. A temperature of greater than 39°C is usually found in about 40% of cases.[9]

Since this is not a common condition, few case reports have been published regarding osteomyelitis presentation to doctors of chiropractic. As far as the authors are aware, no case reports have been published on the presentation of osteomyelitis in the hand to a doctor of chiropractic. Therefore, the purpose of this case report is to describe the presentation of a patient with osteomyelitis of the thumb.

Case

A 21-year-old white man presented with pain in the left thumb. He denied recent or past trauma to the hand and

[a] Victory Health, Guntersville, Alabama.
[b] Department of Radiology, Logan University, Chesterfield, Missouri.
Corresponding author: Richard E. Bechert, DC, 1231 Gunter Avenue, Guntersville, AL 35976. Tel.: +1 256 582 1066. (e-mail: *richardbechert@gmail.com*).
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thumb. In addition, he denied any previous surgery related to this pain or prior history of pain.

His thumb pain began gradually for 4 days prior to presentation. No prior diagnostic or clinical assessment was initially made elsewhere. A review of systems and previous medical history was positive for family history of diabetes. Other than smoking cigarettes, he had no related health behaviors related to the chief complaint. The patient reported that his pain increased on movement of the thumb in flexion and extension ranges. He noted less pain with rest, although some pain was still present. The pain was described as a 5 out of 10 on a numeric pain scale and was "aching with episodes of sharp pain on movement." He has no previous treatment to his thumb, and his vitals were normal.

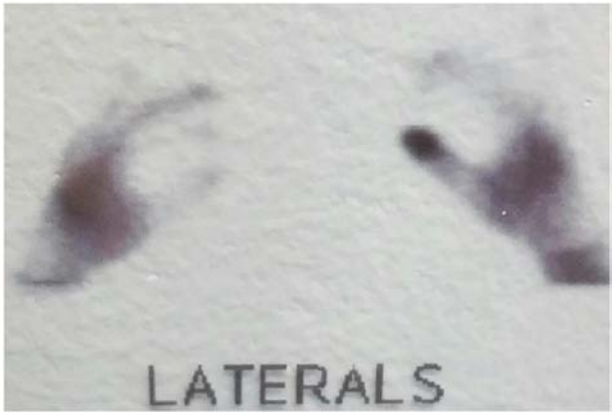

Fig 1. *Bone scan showing increased uptake on left thumb.*

Examination

The thumb appeared edematous and red on the anterior and posterior surfaces. There was point tenderness at the interphalangeal joint and mild limitation of motion at the interphalangeal joint in flexion and extension.

A radiological examination of the left hand was ordered, and 3 views of the hand were taken. Radiographs revealed no signs of fracture or soft tissue signs relative to the presentation. Laboratory tests included complete blood counts with differential, erythrocyte sedimentation rate, serum glucose, and hemoglobin A1C, which were all negative. Because of these findings, the initial, working diagnosis was acute capsulitis of the thumb.

Initial Treatment

For suspected capsulitis, the patient was advised to use ice twice daily for 20 minutes and to consider ibuprofen. He was instructed to call if pain increased or did not abate in 3 days. However, the patient returned to the office 2 days later with worsening of symptoms. He reported that the pain in the thumb was 7 out of 10 on a numeric pain scale, and the inflammation and erythema had increased. No other changes from previous exam was noted, and he was still afebrile.

Additional Diagnostic Imaging and Management

Because of the worsening of his signs and symptoms, a nuclear bone scan was ordered and performed the following day to assess for osteomyelitis (Fig 1). It was positive for increased uptake in the left thumb. The working diagnosis was updated to suspected osteomyelitis. He was referred to his family medical doctor.

His medical physician placed him on 500 mg of ciprofloxacin, a fluoroquinolone antibiotic, to treat the suspected bacterial infection. This was later confirmed by needle biopsy and culture. A consultation with an infectious disease specialist was also ordered because the authors were concerned about the possible aggressive nature of osteomyelitis. The infectious disease specialist's examination of the ears, sinuses, pulmonary, gastrointestinal, and cardiac system was negative. The patient remained afebrile with normal vital signs. However, oxacillin-sensitive Staphylococcus aureus infection of the face was later noted, and its spread to the thumb was confirmed by needle insertion in the area of the thumb pain, revealing a fluid that cultured positive as a 1+ Staphylococcus aureus infection.

Additional radiological and laboratory examinations were ordered. No periosteal elevations or osseous erosions were noted. The patient was admitted to the hospital for surgical incision and drainage of the thumb, and a Hickman catheter was placed to deliver long-term antibiotics therapy. A complete blood count revealed mild elevation of white cell count to 11.63, of which 86.9% were neutrophils, and lymphocytes were considered low at 6.0. The remainder of the complete blood count was within the normal range. Later, a culture of the aspirate revealed 3+ Staphylococcus aureus that was sensitive to cefazolin, cinnamycin, erythromycin, and oxacillin. The patient had additional drainage performed and was placed on Vancomycin during recovery. He also received whirlpool therapy while in the hospital. The patient was discharged within 2 days and was provided antibiotic infusion and nutritional home care with instructions to wash the affected area with soap and water every 12 hours.

The patient recovered over the next few weeks. However, he had residual, but mild loss of distal thumb soft tissue volume (Fig 2), even at 3 years. The patient gave consent to have this case study published.

Discussion

This study presents the case of osteomyelitis of the thumb in a young man with no history of recent surgery or