中文題目：右前臂克雷白氏肺炎菌膿瘍及骨髓炎模仿骨肉瘤表現
英文題目：Right forearm *Klebsiella pneumoniae* abscess and osteomyelitis mimicking osteosarcoma
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Introduction

Hypervirulent *Klebsiella pneumoniae* (*K. pneumoniae*) is a well-reported endemic pathogen among eastern Asia, south-eastern Asia and Korea. Pyogenic liver abscess, pneumonia, endophthalmitis, and central nervous system (CNS) infection are the mainly infected sites in previous reports. Here, we present an uncommon case of disseminated *K. pneumoniae* infection involving forearm initially mimicking osteosarcoma in a previous healthy young male. Subsequent examination discovered a newly diagnosed diabetes mellitus. This typical case alarmed us to pay more attention to the emerging prevalence and complexity of this endemic pathogen.

Case presentation

A 36-year-old male suffered from right forearm swelling and pain upon admission. He denied any previous underlying diseases. Computed tomography (CT) scan and magnetic resonance image (MRI) in other hospital revealed highly suspected malignant bone lesions. After admission, fever was noted and blood culture yielded *K.pneumoniae.* Diabetes mellitus (HbA1c=11.1%) was newly diagnosed in subsequent examination. Under the suspicion of hypervirulent *Klebsiella pneumoniae* infection, we evaluated common infected sites by bone scan, fundoscopy, and abdominal CT scan, which revealed concomitant liver abscess. Under the suspicion of disseminated *K.pneumoniae* infection with right forearm involvement, right forearm fasciotomy and sequestrectomy were performed. The pus culture yielded *K.pneumoniae*. The bone pathology revealed acute and chronic osteomyelitis. Empiric ceftriaxone was administered initially and de-escalated to cefazolin according to susceptibility test. There was no more fever episode and the painful condition improved after above treatment. Afterward, he patient was discharged with oral cephradine for prolonged course to osteomyelitis.

Discussion

Differentiation of osteosarcoma and osteomyelitis had been a challenging topic for a long time and causes delayed diagnosis. Huang et al. reported a review of 10 cases of osteomyelitis mimicking bone malignancies. Suprisingly, 6 out of the 10 cases were infected by *K. pneumoniae*. Osteolysis and osteosclerotic rim surrounding infected zone are common findings of osteomyelitis but can also be seen in bone

malignancies. Elevated erythrocyte sedimentation rate and C-reactive protein may help to differentiate most bone tumor types from osteomyelitis but not in Ewing sarcoma or metastatic bone lesions. Further research may be required for pre-operative differentiation between subacute osteomyelitis and primary bone tumor.

Concerning the infected location as a clinical clue, we also reviewed the common infected sites of hypervirulent *K.pneumoniae* (hvKP) osteomyelitis. Although no distinct studies demonstrated the preferred sites of hvKP related bone infections, Chien et al. had reported no significant difference between axial bone and appendicular bone involved sites in hematogenous *K.pneumoniae* osteomyelitis.

Although its feature of causing hematogenous disseminated infections, fortunately, hvKP tend to be susceptible to commonly used antimicrobial agents. Classic *K.pneumoniae* tend to have a greater resistant rate than hvKP.

Conclusion

We report an uncommon case of *K. pneumoniae* disseminated infection initially presenting with right forearm pain and images mimicking malignant bone lesions. Osteomyelitis and bone malignancies are difficult to distinguish from images or involved sites. Surgical debridement, obtaining cultures and pathology, and carefully evaluation in susceptible hosts such as diabetes mellitus are essential. We expect that this typical case may alarm us to pay more attention to this emerging pathogen in Taiwan.