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CLINICAL IMAGE

Multisystemic complications due to Staphylococcus aureus infection

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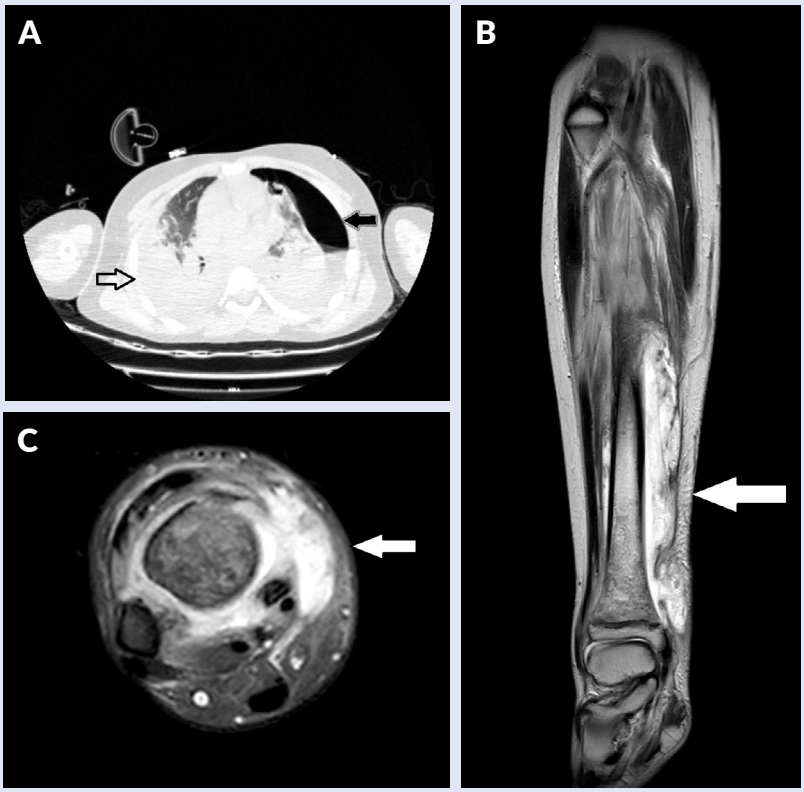

Figure: Panel A: *Axial HRCT chest shows diffuse bilateral consolidations along with left hydropneumothorax (black arrow) and right hydrothorax (white arrow).* ***Panel B*** *and* ***C****: Coronal T2 (B) and axial STIR (C) MR images of right leg show diffuse marrow edema along the entire length of tibia predominantly affecting the distal meta-diaphysis with adjacent subperiosteal collection along with diffuse soft tissue edema predominantly on medial aspect (indicated by arrow).*

Keywords: *multisystemic complications, Staphylococcus aureus infection.*

A 13-year-old male presented with a six-day history of progressively worsening discomfort and redness in the right leg, accompanied by intermittent fever, chills, pleuritic chest pain, and shortness of breath. Due to escalating symptoms, the patient sought care at a local hospital, where initial investigations revealed elevated markers of inflammation (CRP, ESR), with coagulopathy (elevated D-dimer, prolonged PT), and deranged liver function tests. Imaging identified minimal bilateral pleural effusion. Given the severity of his condition and the lack of an available ICU bed, he was urgently transferred to a tertiary care center.

Upon arrival, the patient exhibited severe respiratory compromise necessitating intubation and the insertion of a left-sided intercostal chest tube for pneumothorax confirmed by HRCT of the chest. Empiric broad-spectrum antimicrobial therapy was initiated, including Cefazolin for Methicillin-susceptible Staphylococcus aureus (MSSA) coverage, Linezolid for potential Methicillin-resistant Staphylococcus aureus (MRSA) coverage and Piperacillin-Tazobactam. The tracheal aspirate culture from the previous hospital revealed MSSA, and the RT-PCR panel detected Staphylococcus aureus with a CT value of 35. Despite initial management, the patient's condition worsened, with a subsequent rise in WBC count to 32,000 cells/μL. Further evaluation revealed a right-sided empyema thoracis, necessitating urgent drainage via a right intercostal tube.

Following discharge from the ICU, MRI of the lower limbs revealed findings consistent with osteomyelitis. The case was subsequently managed by the orthopedic team, who performed surgical debridement to address the infection. Meanwhile, the patient also developed post-Staphylococcal glomerulonephritis and was managed by a nephrologist. The patient demonstrated significant clinical improvement following a 14-day course of Linezolid and a four-week course of Cefazolin. Comprehensive supportive care facilitated recovery from the multisystemic involvement.

Over last 10 years, there has been a relative increase in MSSA, reducing the dominance of MRSA in invasive diseases.[1] Typically, MSSA is most often linked with skin and soft tissue infections.[2] On the other hand, MRSA shows a significantly higher likelihood of causing respiratory infections and bacteremia.[3] Therefore, antibiotic for both the strains were used in this case. This case underscores the aggressive nature of invasive bacterial infections in pediatric patients, highlighting the need for rapid identification and management of complications such as empyema and pneumothorax. The successful resolution of a life-threatening illness through timely intervention and targeted antimicrobial therapy exemplifies the importance of a multidisciplinary approach in critical care.

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CONFLICTS OF INTEREST

None

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