

Bacterial Osteomyelitis Associated with Bone Echinococcosis: Review Illustrated by a Case Report

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INTRODUCTION & AIM

Bone echinococcosis is a rare manifestation of echinococcal infection, usually caused by *Echinococcus granulosus*, while *E. multilocularis* is less reported. It commonly affects the spine, pelvis and long bones and may lead to progressive bone destruction. Secondary bacterial infection may cause chronic osteomyelitis and complicate management. This study summarizes cases and highlights clinical challenges using an illustrative case.

METHODS

Data were collected from case reports and review articles using the search terms “bacterial osteomyelitis” AND “bone echinococcosis”, “chronic osteomyelitis” AND “hydatid disease of bone” in PubMed, Scopus, Web of Science, Embase, and Google Scholar.

ILLUSTRATIVE CASE

An illustrative case describes a 44-year-old patient with alveolar echinococcosis involving the liver, sternum and lungs who developed a draining sternal fistula.

- Deep tissue cultures grew *S. aureus* and *Corynebacterium amycolatum*.
- Trimethoprim-sulfamethoxazole was not tolerated, and treatment was continued with doxycycline.
- Possible CNS dissemination was suspected.

- The femur, pelvis and thoracic spine were the most commonly affected bones.
- Secondary infection occurred in several cases, with pathogens including *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Pseudomonas aeruginosa* and *Corynebacterium* spp.
- In some cases, cultures were sterile, but consistent with chronic osteomyelitis.
- Management combined anthelmintic therapy, antibiotics and surgery. Albendazole was commonly used (sometimes combined with praziquantel) or mebendazole. Antibiotics were guided by susceptibility testing.

- CT showed destruction of the sternum and left second rib.
- Albendazole therapy was continued. Surgery was considered but not indicated.

To our knowledge this case may represent one of the first documented instances of bacterial osteomyelitis complicating **sternal alveolar echinococcosis**.



Fig 1. Draining sternal fistula on the anterior chest wall.



Fig 2. Axial CT: destructive change of the sternum.

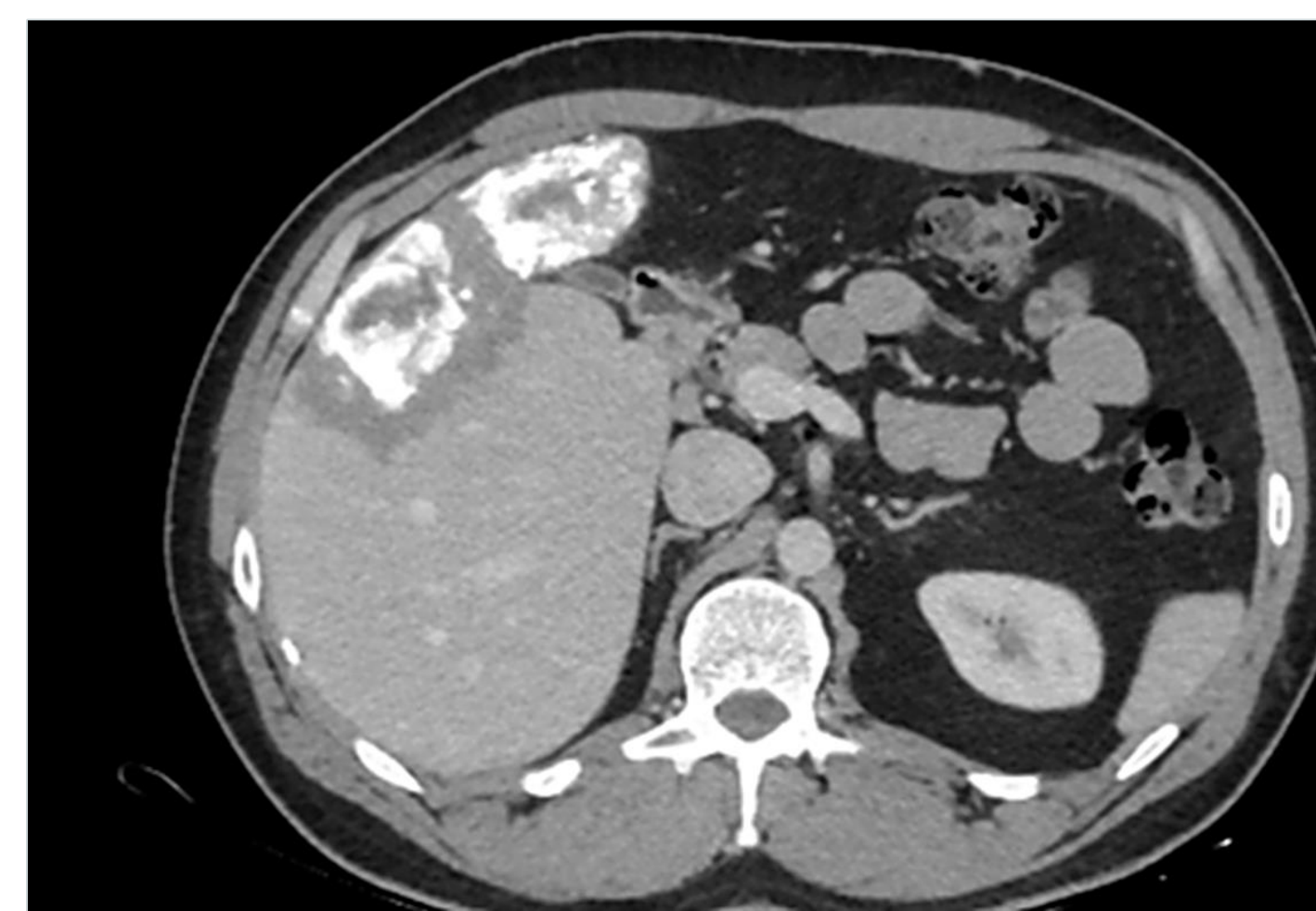


Fig 3. Axial CT: hepatic lesion with calcification.

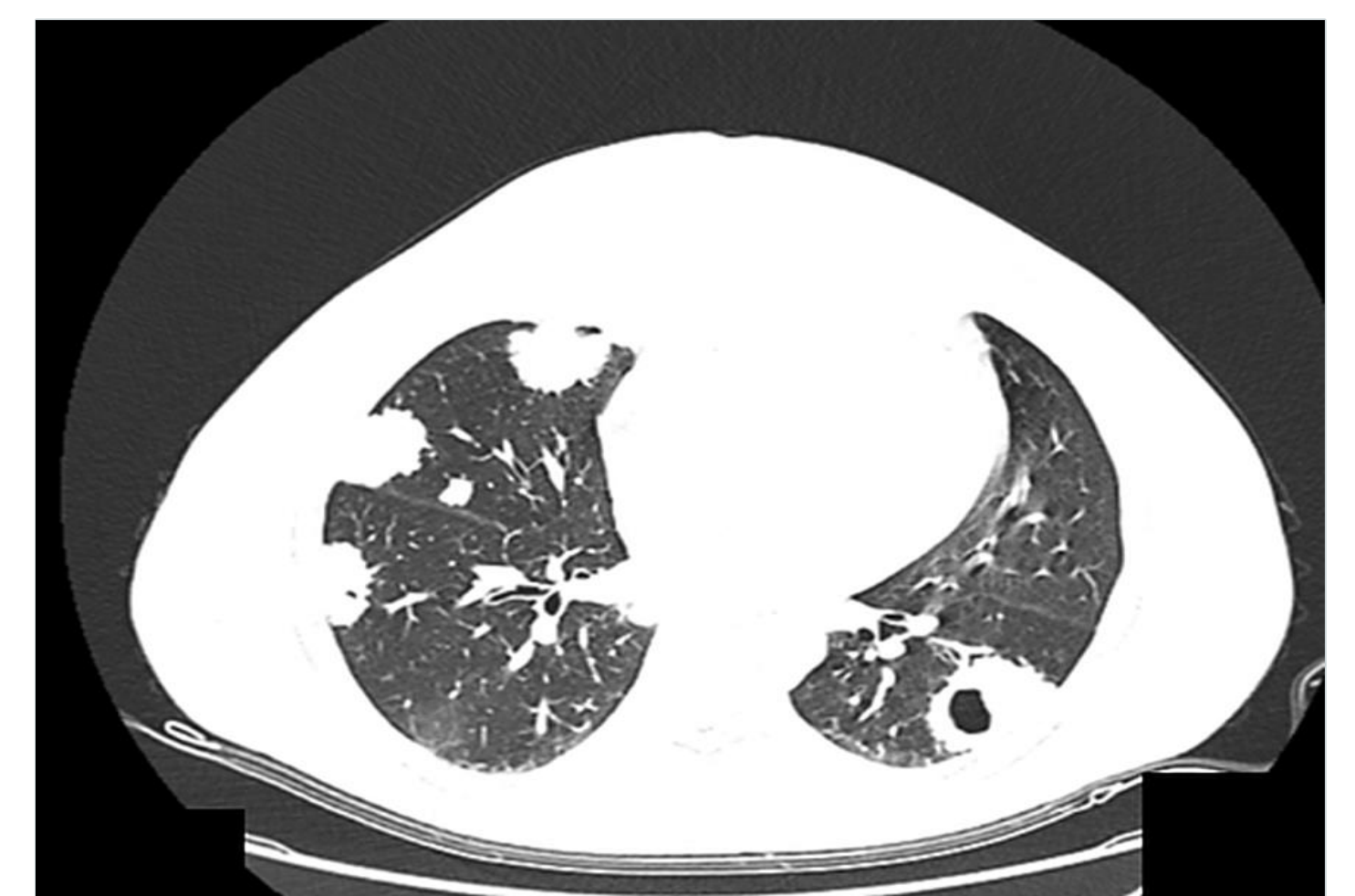


Fig 4. Axial CT, lung window: pulmonary involvement.

CONCLUSIONS

- Bone echinococcosis with secondary bacterial osteomyelitis is rare but clinically complex.
- Coinfection complicates management and requires careful evaluation.
- Awareness of this condition is essential for management and improved outcomes.

References. 1. Steinmetz S, et al. Treatment challenges associated with bone echinococcosis. J Antimicrob Chemother. 2014;69(3):821-826. 2. Paul N, et al. Chronic Osteomyelitis Secondary to Hydatid Disease of Bone. A Case Report. J Orthop Case Rep. 2022 Jun;12(6):82-85. 3. Jain E, et al. Hydatid disease of bone complicated by chronic osteomyelitis. Ann Pathol Lab Med. 2019;6(12):C133-C135. 4. Cattaneo L, et al. Cystic Echinococcosis of the Bone: A European Multicenter Study. Am J Trop Med Hyg. 2019;100(3):617-621.

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