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Bone tumors mimicking skeletal infections on imaging

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Objectives: Atypical appearances of common bone tumors may rarely mimic bone infections both clinically and radiologically resulting in delay in diagnosis and treatment with disastrous consequences. We aim to illustrate three cases of bone tumors initially misdiagnosed as bone infections.

Materials and Methods / Results: We retrospectively reviewed the medical records and imaging studies of three patients with bone tumors initially misdiagnosed as bone infections:

Case A: a 18-yr-old woman with left-sided low back pain and fever underwent MR imaging that was interpreted as unilateral infectious sacroilitis and received antibiotic treatment. MR imaging was repeated after two months because of deterioration of symptoms and showed a juxtacortical lytic process of the left sacroiliac joint and foci of abnormal signal scattered in pelvic bone marrow. Bone biopsy revealed Ewing sarcoma.

Case B: a 62-yr-old woman with mitral valve replacement complaining for mild pain in her left humerus underwent radiograph of the humerus that showed a sclerotic lesion . The lesion had no substantial change during a two- yr follow up. Bone biopsy showed non specific, mild inflammatory changes. After 2 ½ years, humeral pain worsened and imaging studies were repeated . Radiography and CT demonstrated more prominent thick periosteal reaction of the lesion whereas on MR imaging the lesion was hypointense on T1 and mixed on T2- weighted images . PET-CT was recommended and revealed moderate FDG uptake of the lesion, two additional similar lesions in her femurs and an hypermetabolic pulmonary lesion. The pulmonary lesion proved to be a lung carcinoid tumor on biopsy, whereas bone lesions were attributed to bone metastases.

Case C: a 12-yr-old girl presenting with pain and swelling in her left arm and systematic symptoms. radiography showed a lytic area of left humerus, with vague margins and lamelar periosteal reaction. On MR imaging the lesion resembled acute osteomyelitis. Bone biopsy and histology revealed histiocytosis.

Conclusion: Awareness of rare manifestations of bone tumors that mimic skeletal infections is crucial for patients' prompt diagnosis and treatment.