Hypertrophic Osteoarthropathy

A 56-year-old woman presented for staging after a suspicious lung nodule was discovered. Anterior whole-body planar image from a Tc-99m methyl diphosphonate (MDP) bone scan (A) demonstrates heterogeneous increased linear cortical uptake in the bilateral lower extremities having a “double stripe” or “tram-track” appearance. Fused F-18 fluorodeoxyglucose (FDG) PET/CT (B) demonstrates a hypermetabolic spiculated pulmonary nodule in the posterior left lower lobe. Tissue sampling of the nodule revealed primary bronchogenic carcinoma.

Hypertrophic osteoarthropathy (HOA) is rarely seen in its primary form, pachydermoperiostosis, and more commonly encountered in its secondary form. Although pulmonary infection/inflammation can result in secondary HOA, lung carcinoma is the most common cause. However, a wide variety of extra-thoracic processes have also been associated with HOA, including malignancies of the gastrointestinal tract, kidney, liver, and pancreas; cirrhosis; and inflammatory bowel disease. HOA is a benign process and is unrelated to osseous metastases. Despite theories, the precise mechanism of HOA is unknown. Scintigraphy findings may improve after treating the underlying condition.

Although less sensitive compared to bone scintigraphy, HOA can be seen on other imaging modalities including radiographs, CT, and MR, and presents with symmetric periosteal reaction/periostosis in the extremities.

Nuclear medicine bone scans are common in clinical imaging and are highly sensitive at detecting osseous metastases, but are not specific. It is important for the interpreting physician to be aware of HOA and its imaging appearance on bone scintigraphy to avoid the misdiagnosis of osseous metastatic disease.

REFERENCES