Spectrum of Combined Tc99m-HDP SPECT/CT Findings in Benign and Malignant Bone Conditions: Additional or Redundant Information?

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Abstract

Whole body Bone Scintigraphy has been an established sensitive method for evaluation of bone pathology. However, it lacks specificity and adequate anatomical correlation, even when SPECT technique is used. Bone Scintigraphy SPECT/CT has emerged as an important modality in the diagnosis of benign and malignant osseous conditions. When combined SPECT/CT is used, the benefit of precise anatomic localization of the radiotracer uptake and the corresponding CT appearance may help clarify the nature of an abnormality. Despite the increasing clinical usage and experience during the last few years, the SPECT/CT features of many osseous conditions have not been fully described and many nuclear medicine physicians, radiologists and other physicians (like orthopedic surgeons) are slowly becoming familiar with the combined Bone Scintigraphy SPECT/CT patterns. Our goal is to demonstrate different examples of benign and malignant conditions on Tc99m-HDP SPECT/CT, focusing on the additive value of this method and its correlation with clinical information and other imaging modalities. We will use a variety of cases collected in our institution, including, among others: osteoarthritis, undifferentiated connective tissue disease, stress fracture, temporo-mandibular joint disease, heterotopic ossification, osteosarcoma, and spine hemangioma.