

## Solitary Osseous Metastasis of Hepatocellular Carcinoma on SPECT/CT

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### Abstract

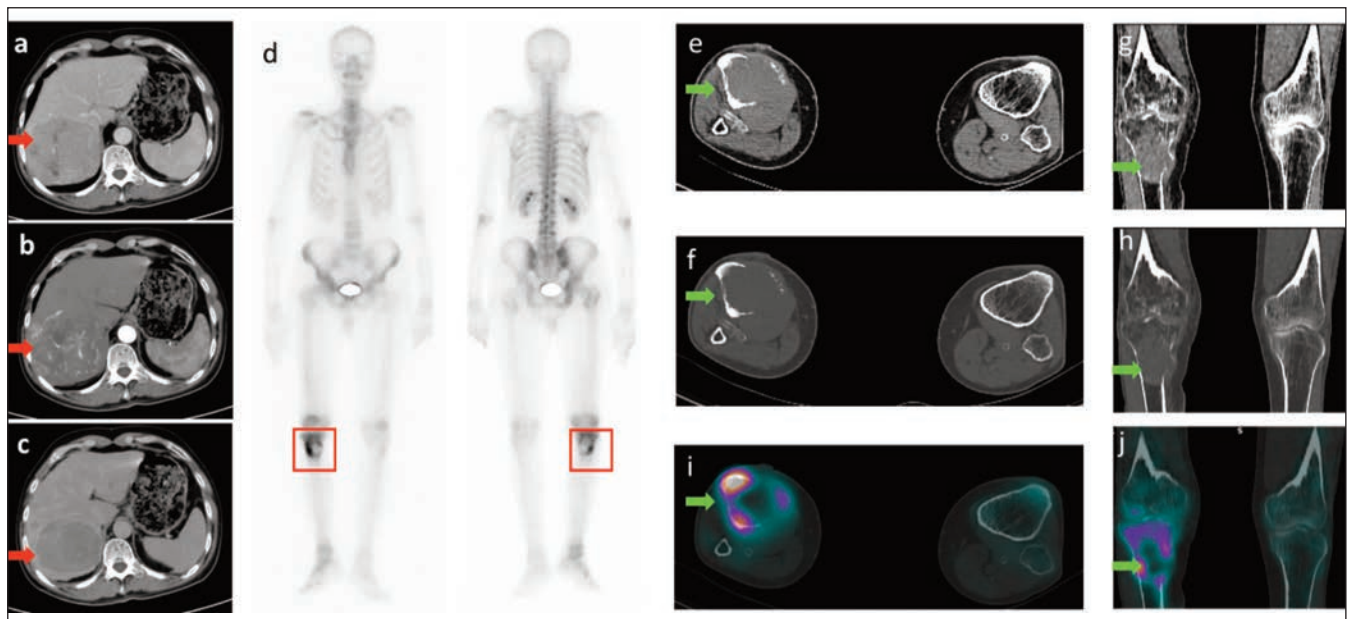
Hepatocellular carcinoma (HCC), sixth most common cancer world-over, commonly metastasizes to lung, lymph nodes and adrenal glands. Incidence of osseous metastases in HCC has been reported to be 3-20 % which occurs predominantly in the axial skeleton. It only rarely occurs in the appendicular skeleton and that too as the solitary focus of metastatic deposit.<sup>3,4</sup> We present a case of HCC with solitary osseous metastases to the proximal tibia.

**Keywords:** Hepatocellular carcinoma, bone scan, SPECT/CT, osseous metastasis

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### Discussion

A 58-year-old male, known case of Hepatitis C, presented with pain in right upper quadrant for past few months. Triphasic computed tomography (CT) showed a large arterially enhancing mass in segment VII of liver with typical features of hepatocellular carcinoma (HCC) i.e. enhancement in the arterial phase with subsequent washout in venous and delayed phases (a-c, red arrow). At presentation, he also complained of pain in the right lower limb for which he had a bone scan to complete staging workup. Delayed whole body planar images acquired 3 hours after intravenous injection of <sup>99m</sup>Tc Methylene diphosphonate [MDP] showed heterogeneous tracer uptake in the right proximal tibia (d, red box). Limited single photon emission computed tomography (SPECT/CT) of proximal tibia revealed an underlying lytic lesion with soft tissue component with increased tracer activity in the peripheral bony component and relative photopenia in the soft tissue component (e-j).



**Figure:** Axial images of triphasic CT show a large arterially enhancing mass in segment VII of liver with washout in venous and delayed phases (a-c, red arrow). Bone scan planar images showed heterogeneous tracer uptake in the right proximal tibia with areas of photopenia (d, red box). Limited SPECT/CT of proximal tibia showed an underlying lytic lesion with soft tissue component on CT only axial (e,f) and coronal (g,h) images. Increased tracer activity is seen in the peripheral bony component with photopenia in the soft tissue component of fused axial (e) and coronal (j) SPECT/CT images.

HCC has one of the highest mortality rates world over with low incidence of extrahepatic bony metastases.<sup>1</sup> Osseous metastases at initial presentation are usually rare and present with pain or pathological fracture.<sup>2</sup> These most commonly involve the spine and are mostly hypervascular, expansile, lytic lesions with soft tissue.<sup>3</sup> Metastases in the appendicular skeleton, and that too at initial presentation, is extremely rare with only a few such reported cases.<sup>4,5</sup> In such unusual cases, hybrid nuclear scans play a pivotal role in effectively staging and appropriate management of these patient. In the current era of technological advancement, SPECT/CT has played a crucial role in the characterization and better localization of lesions seen on 2-D planar imaging. Therefore, bone scan with SPECT/CT should be routinely utilized to stage and restage the disease especially in cases of unusual presentation.

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