Rare splenic metastasis of renal cell carcinoma detected on ^{99m}Tc-MDP bone scan

Sir,

^{99m}Tc-methylene diphosphonate (MDP) uptake in soft tissues like primary breast mass, liver metastases, ascites, and pleural effusion are well-known entities. We here in report a rare case of splenic metastasis from renal cell carcinoma (RCC) which was detected on ^{99m}Tc-MDP bone scan. A 52-year-old male was a diagnosed case of clear cell carcinoma of the left kidney and had undergone nephrectomy 3 years ago. The patient was on regular follow-up and was disease free. However, a few months back he complained of severe backache. A bone scan done was done for evaluation of the bone pain. The ^{99m}Tc-MDP scan did not reveal any abnormally increased activity in the axial and appendicular skeleton. The left kidney was not visualized; post nephrectomy status. But, an area of soft tissue uptake of tracer was seen in the left hypochondrium [Figure 1]. A contrast-enhanced computed tomography (CECT) abdomen was done which revealed a large hypodense inhomogenously enhancing mass (arrow) in the spleen. In addition to the splenic metastasis, metastatic lesions are also seen in the liver with recurrence in the left renal bed [Figure 2].

Extraosseous uptake of MDP is not an unusual finding. Published reports have depicted MDP accumulation in liver metastases,[1,2] pericardial metastasis,[3] and even metastasis from malignant peripheral nerve sheath tumor.[4] In lesions with calcifications seen on morphologic imaging, it is understood that the uptake of MDP is because of its affinity to bind to calcium. But soft tissue uptake in tissues which lack morphologic calcifications have also been documented. A proposed mechanism for MDP accumulation in soft tissue is cellular alterations in calcium metabolism. It is postulated that there is disruption of the cellular membrane through which the bone-seeking radiopharmaceutical gains entry into the cell and is deposited with calcium on the mitochondria or attaches to calcium by displacing other anions.[5]

Metastatic involvement of spleen is uncommon. The incidence of isolated metastasis is less than 1%.[6] Metastasis to the spleen from malignant neoplasms is a rare phenomenon and is usually found at autopsy.[7] Lung, bones, liver, and brain are the commonest sites of metastatic spread in renal cell cancer.[8,9] Splenic metastases are usually asymptomatic. Sometimes the patient may present with abdominal mass or pain, fatigue, and weight loss.[10] Many theories have been postulated regarding the rarity of finding metastases to the spleen. It is suggested that it is due to the constant flow of blood through the spleen, the sharp angulation between the splenic and coeliac arteries prevent large tumor cells from passing through it. Also the lack of afferent lymphatic vessels prevents the spread via the lymphogenic route.[11,12] Splenic metastases from RCC is quiet rare and only a few cases have been reported. To our knowledge this is the first case being reported, in which MDP has shown accumulation in a rare case of splenic metastasis from RCC.

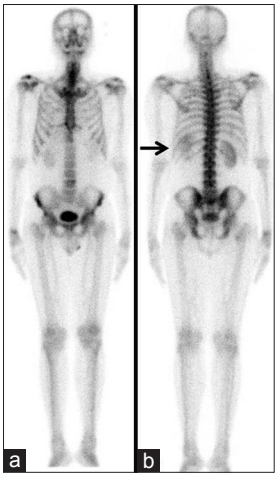

Figure 1: Anterior (a) and posterior (b) planar images of 99mTc-methylene diphosphonate (MDP) bone scan. No abnormally increased activity is noted in the bones suggesting no osteoblastic metastasis. A focal area of increased uptake is noted in the left hypochondrium (arrow). The left kidney is not visualized; post nephrectomy status

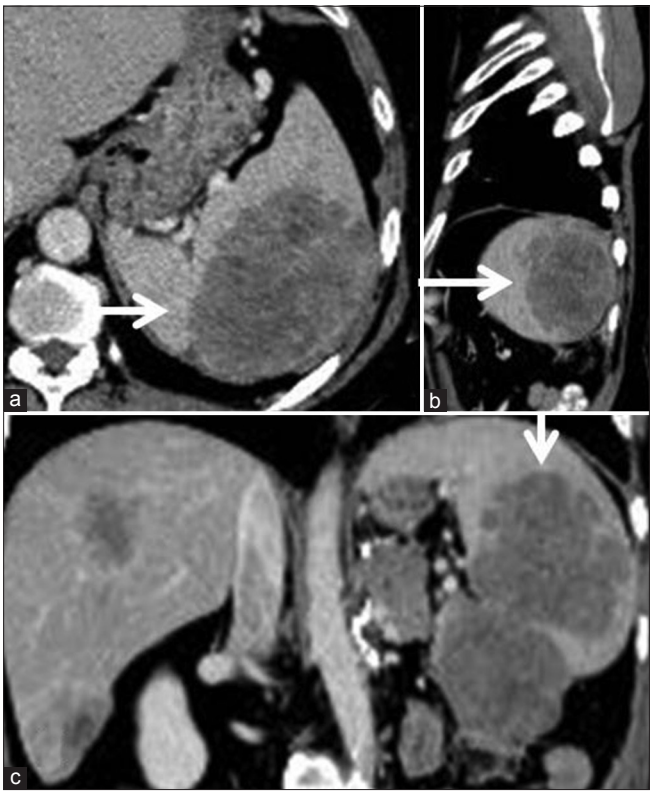

Figure 2: Contrast enhanced computed tomography (CECT) scan; axial (a) sagittal (b) and coronal (c) images reveal a large hypodense inhomogenously enhancing mass (arrow) in the spleen. In addition to the splenic metastasis, metastatic lesions are also seen in the liver with recurrence in the left renal bed (c)

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