

Multiple Myeloma in Lung Cancer Patient on PET/CT

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1. Abstract

A 67-year-old man with a history of lung carcinoma 1 year earlier was addressed for the suspicion of osseous metastasis. MRI findings were compression fracture of the second thoracic vertebra and hypointense signal in multiple vertebrae. ¹⁸F-FDG PET/CT revealed no abnormal metabolism on bone. Biopsy eventually confirmed the diagnosis of multiple myeloma. This case suggests that PET/CT is significant to distinguish between multiple myeloma and metastatic disease in patients with lung cancer.

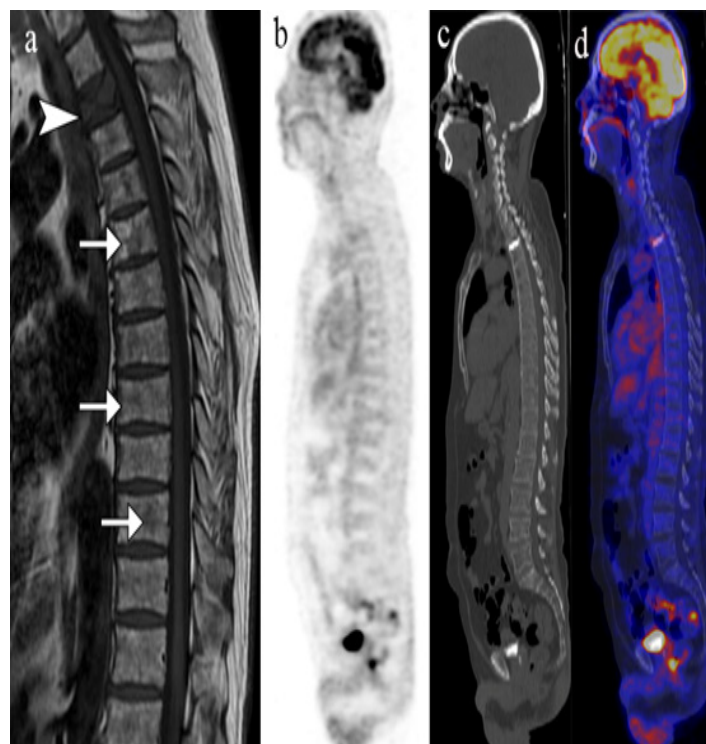
2. Keywords:

multiple myeloma; FDG PET/CT; bone metastasis; lung cancer

3. Clinical Image

A 67-year-old man with 1-year history of lung adenocarcinoma (T1N0M0) complained of progressive back pain for 2 months. MRI was performed to assess the vertebral condition. T1WI revealed heterogeneous low intensity of multiple vertebrae (a, arrows) and the compression fracture of the second thoracic vertebra (a, arrowhead), indicating suspected metastatic

tumor. Vertebroplasty and biopsy for the second thoracic vertebra were then conducted to relieve symptom and confirm the diagnosis. Pathologic results eventually confirmed the diagnosis of multiple myeloma. To determine whether the remaining vertebral lesions were myeloma or metastases, ¹⁸F-FDG PET/CT was conducted. ¹⁸F-FDG PET/CT (b, c, and d) showed that except for the high activity of the second thoracic vertebra caused by vertebroplasty, no abnormal metabolic foci were found in the rest of the body, suggesting that all the bone lesions were probably myeloma rather than metastases. Multiple myeloma is a malignant plasma cell proliferative tumor with metabolic heterogeneity, which could coexist or occur successively with many other malignant tumors.[1,2] About 45% to 55% MM patients show lower metabolic activity of bone compared to metastatic disease on ¹⁸F-PET/CT.[3,4] Multiple myeloma in cancer patients should not be misinterpreted as bone metastases, especially those with low bone ¹⁸F-FDG uptake. Our case suggests that ¹⁸F-FDG PET/CT is valuable to differentiate myeloma from metastases in patients with lung cancer.



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