


A solitary rod-shaped intertrabecular metastasis in the femur

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Key message

Intertrabecular metastasis (ITM) is a type of bone metastasis characterized by tumour growth without significant trabecular changes. ITM is most commonly found in vertebral bodies, and rarely in long bones. We report a solitary rod-shaped ITM of lung adenocarcinoma in the femur.

KEYWORDS

adenocarcinoma, femur, intertrabecular metastasis, lung cancer

CLINICAL IMAGE

A 75-year-old man with a 60-pack-year smoking history underwent bronchoscopy for nodules in the right lung. Histopathological evaluation of the biopsy specimens led to a diagnosis of invasive mucinous adenocarcinoma. Positron emission tomography/computed tomography (PET/CT) showed uptake of ¹⁸F-fluorodeoxyglucose (FDG) in the

pulmonary nodules and hilar lymph nodes, and rod-shaped uptake in the right proximal femur (Figure 1A,B). No brain metastases were detected. Magnetic resonance imaging (MRI) of the femoral lesion showed a well-defined area of signal hypointensity on T1-weighted imaging, while T2-weighted imaging showed signal hyperintensity within the bone marrow measuring 65 mm in length (Figure 1C,D). CT showed no destruction of the femoral cortex (Figure 1E).

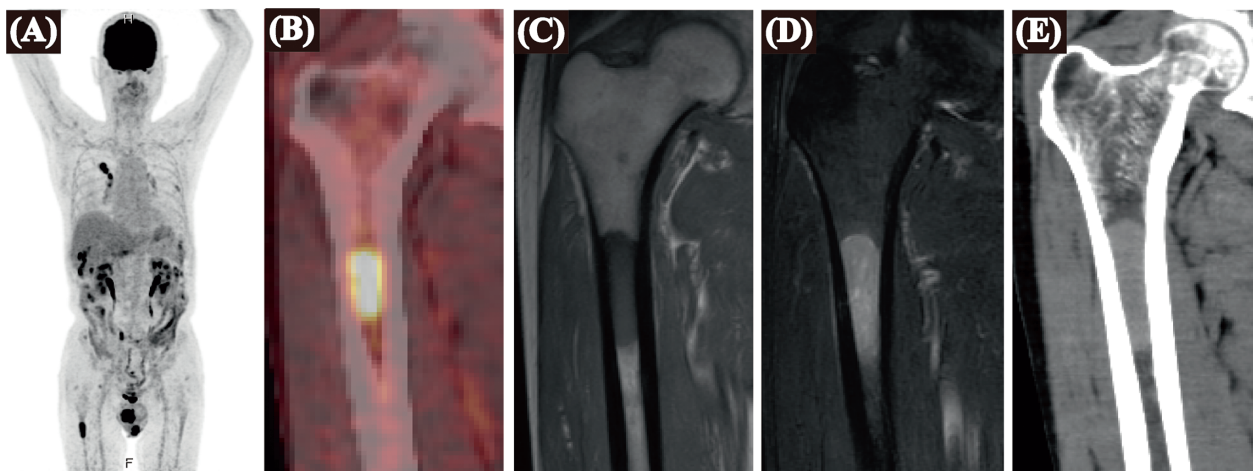


FIGURE 1 (A) Overview of ¹⁸F-fluorodeoxyglucose positron emission tomography/computed tomography (FDG-PET/CT) showing uptake in the pulmonary nodules, hilar lymph nodes, and right femur. (B–E) Images of the right proximal femur. FDG-PET/CT shows rod-shaped uptake in the bone marrow (B). Magnetic resonance imaging (MRI) shows a well-defined hypointensity on T1-weighted imaging (C) and a hyperintense area (D) within the bone marrow on T2-weighted imaging. CT shows no destruction of the bone cortex (E).

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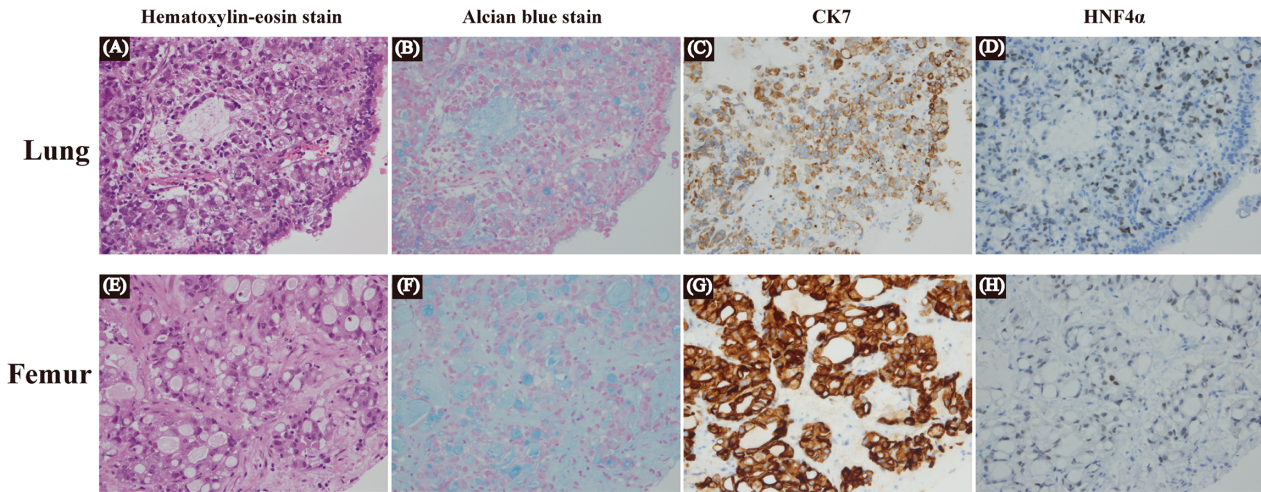


FIGURE 2 Histopathological findings of specimens from the lung and femur lesions. (A–D) Lung specimens stained by haematoxylin–eosin (A), alcian blue (B), CK7 (C) and HNF4 α (D). (E–H) Femoral specimens stained by haematoxylin–eosin (E), alcian blue (F), CK7 (G) and HNF4 α (H). Both specimens show cuboidal tumour cells with abundant intracytoplasmic mucin stained by alcian blue and enlarged nuclei stained by HNF4 α , and typically expressing CK7.

Biopsy specimens from the femoral lesion showed the same characteristics as the lung carcinoma (Figure 2). Based on these findings, the femoral lesion was diagnosed as an intertrabecular metastasis (ITM) of the lung adenocarcinoma. ITM is characterized by tumour growth without significant trabecular changes and is most commonly found in vertebral bodies,¹ but rarely in long bones. This is the first report to show a solitary, rod-shaped ITM in a long bone. FDG-PET/CT is superior to MRI and bone scintigraphy in detecting bone metastases.² The patient is currently receiving chemotherapy.

AUTHOR CONTRIBUTIONS

Yuichi Dai contributed to the pathological diagnosis. Mako Yokoyama and Tohru Sakamoto contributed substantially to the writing of the manuscript. Toshihide Inui, Tomohiro Namiki, Hiroaki Ishikawa, Hiroko Watanabe, and Yuichi Dai contributed substantially to the critical review of the manuscript. All authors read and approved the final manuscript.

CONFLICT OF INTEREST STATEMENT

None declared.

DATA AVAILABILITY STATEMENT

Research data are not shared.

ETHICS STATEMENT

The authors declare that appropriate written informed consent was obtained from the patient for the publication of this manuscript and accompanying images.

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