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Extraosseous Accumulation of Tc-99m MDP in Lymph Node Metastases from Colon Cancer

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In colon cancer, extraosseous uptake of bone-seeking radionuclide in liver metastases is commonly seen on the bone scan. However, extraosseous deposition in lymph node metastasis is rare. The authors report a case in which metastatic pulmonary lymph node metastases from colon cancer were shown to contain concentrated Tc-99m methylene diphosphonate (MDP). Computed tomography (CT) of the chest showed enlarged calcified lymph nodes at the bilateral hilar regions, and should be considered for extraosseous Tc-99m MDP accumulation.

A 60-year-old female patient with descending colon cancer (mucinous adenocarcinoma), status post chemotherapy, was referred for a scintigraphic bone scan to evaluate for metastatic disease and assist in planning therapy. The bone scan was performed at three hours after the injection of 740MBq (20 mCi) Tc-99m MDP. Findings include intense radiotracer accumulation in the anterior aspect of the right 6th rib. Additionally, soft tissue uptake is noted in bilateral pulmonary hilar regions (Figure 1a). Unenhanced CT of the chest performed 10 days earlier demonstrated metastatic lymhadenopathy and enlarged calcified lymph nodes at the bilateral hilar regions (Figure 1b). Postenhanced CT demonstrated large metastases at the liver (Figure 1c). Although accumulation of Tc-99m MDP in liver metastases with no apparent calcification occurs frequently in colon cancer, no characteristic Tc-99m MDP uptake was observed within those metastatic lesions.

Extraosseous uptake of Tc-99m MDP has been reported in various pathologic conditions [1,2]. Mucin-producing tumors contain a glypoprotenin that is biochemically similar to ossifying cartilage and binds calcium salts. Classically, mucinous adenocarcinoma tumors of the gastoinestinal tract are associated with this mechanism of Tc-99m MDP deposition in the primary and metastatic tumors [3,4]. These findings mainly correspond in location to extraosseous uptake on the bone scan, and suggest that the accumulation of Tc-99m MDP in the present case is strongly related to the calcium deposition. It also appears that Tc-99m MDP may accumulate in a calcified metastatic lesion before the calcification appears on x-ray CT [5].

COMPETING INTERESTS

The authors declare they have no conflict of interests in publishing this case study.

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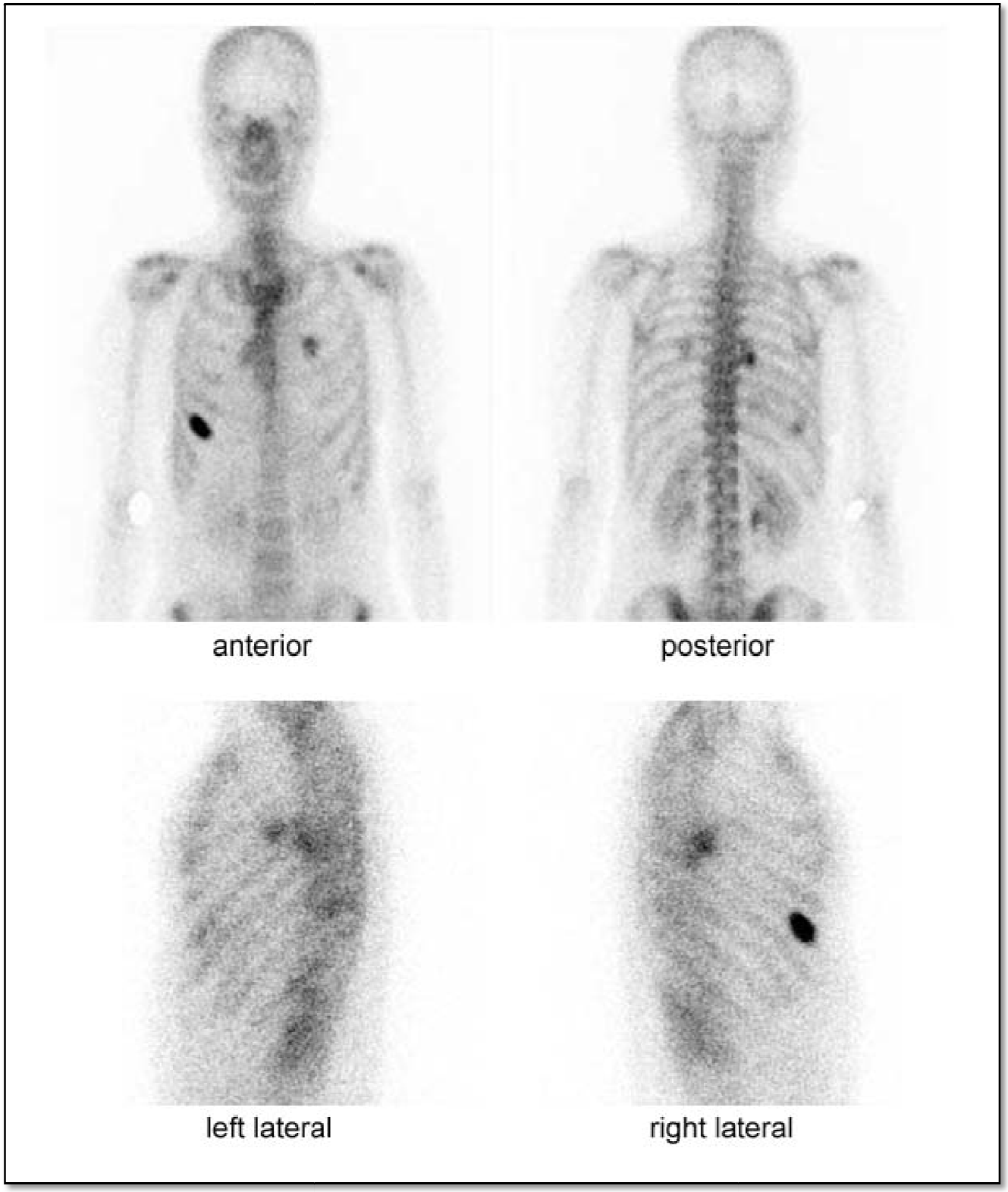

Figure 1. (a) The bone scan was performed after the injection of Tc-99m MDP. Findings include intense radiotracer accumulation in anterior aspect of the right 6th rib, and the soft tissue uptake is noted in bilateral pulmonary hilar regions.

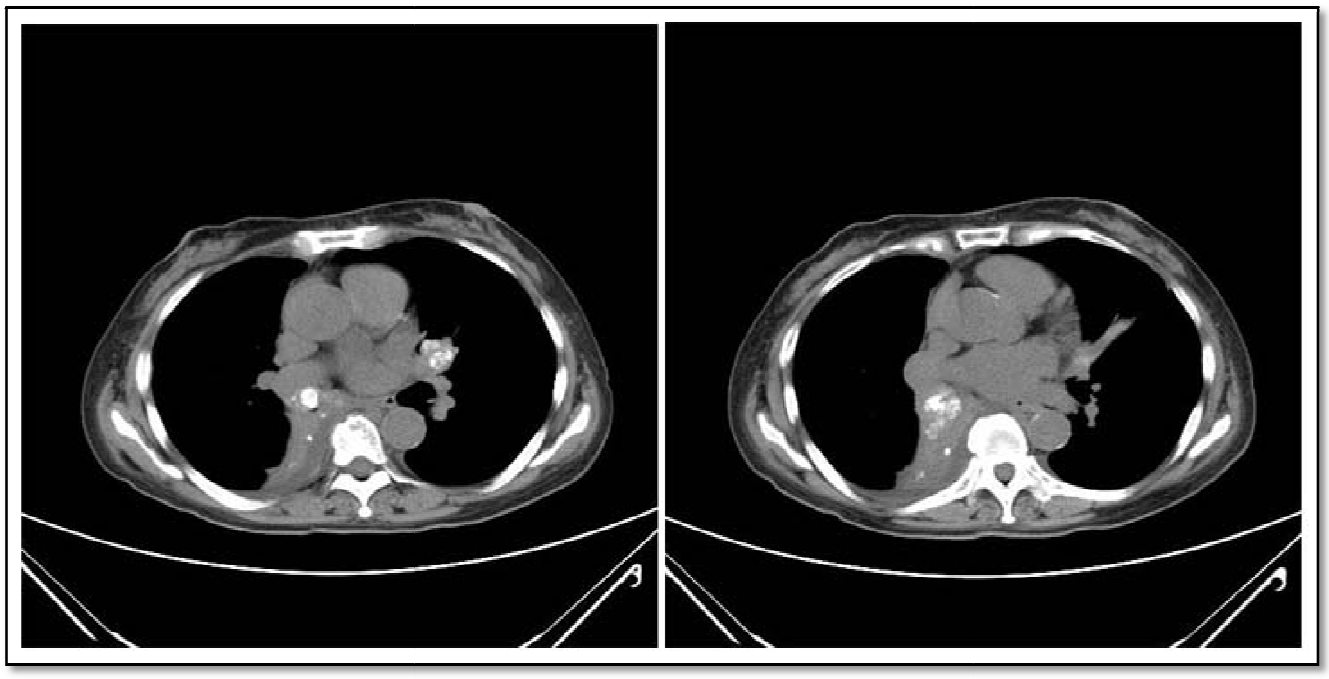

Figure 1. (b) Unenhanced CT of the chest performed 10 days earlier demonstrated metastatic lymhadenopathy and enlarged calcified lymph nodes at the bilateral hilar regions.

Figure 1. (c) Postenhanced CT demonstrated the large metastases at liver.

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