

Interesting images

Incidental Ga-68 DOTATATE uptake in an aggressive vertebral hemangioma[☆]

Captación incidental de Ga-68 DOTATATE en un hemangioma vertebral agresivo

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A 57-year-old woman, who had complaints of backache, chronic diarrhea and increased Chromogranin A levels, was referred to Ga-68 DOTATATE PET/CT to investigate a possible neuroendocrine tumor. There was no pathological Ga-68 DOTATATE uptake in the liver, stomach, pancreas, or intestine suggestive of neuroendocrine tumor. Interestingly, Ga-68 DOTATATE PET/CT images showed moderate Ga-68 DOTATATE uptake on T6 vertebral body extending through left posterior elements with polka dot appearance caused by thickened trabeculae on the corresponding CT images, consistent with aggressive vertebral hemangioma (Fig. 1).

Vertebral hemangiomas are benign primary vascular tumors of bone, commonly located in the spine. Although most patients are asymptomatic, some lesions could have aggressive course, extend into the epidural space or involve the posterior elements leading to spinal compression and neurological deficits. The characteristic imaging pattern is coarsened vertical trabeculae on CT images and hyperintensity on T1- and T2-weighted magnetic resonance images.

Ga-68 DOTATATE is a somatostatin analogue with high affinity for somatostatin receptor subtype 2, and thus Ga-68 DOTATATE

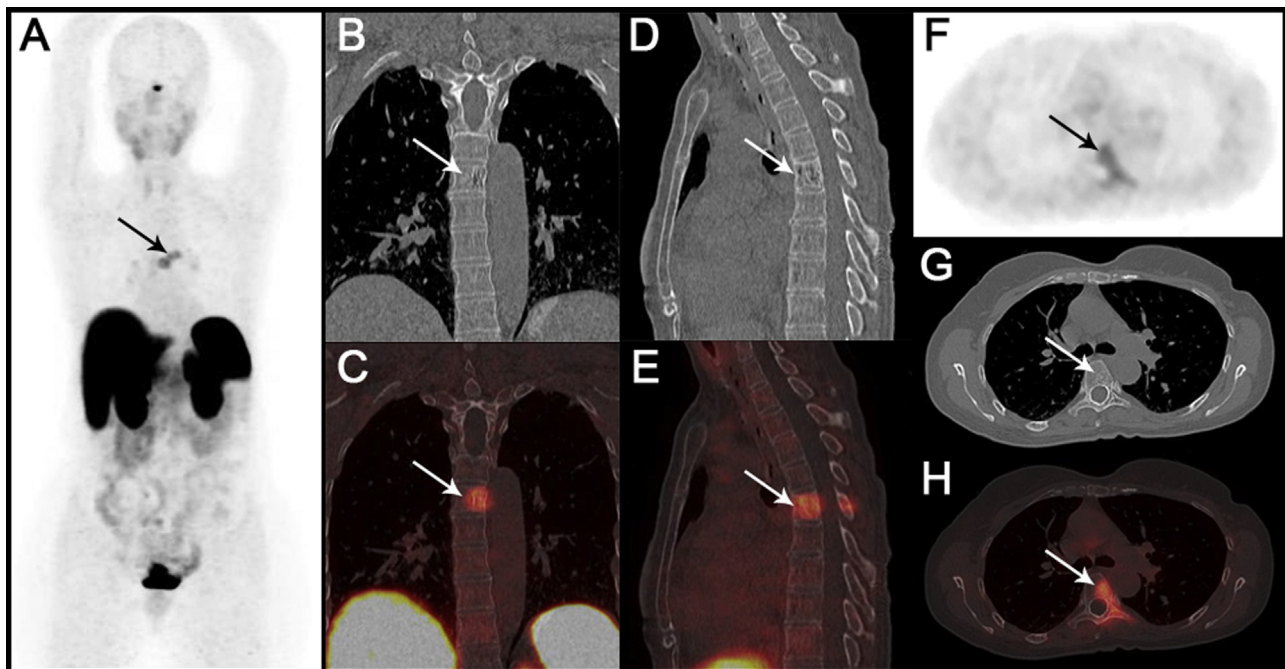


Figure 1. Coronal MIP (A) images of Ga-68 DOTATATE PET/CT was negative for a neuroendocrine tumor, however, demonstrated increased uptake localized in the sixth thoracic vertebrae. Coronal CT (B), fused PET/CT (C), sagittal CT (D), and fused PET/CT (E) images depicted characteristic “corduroy” or “jail bar” sign caused by bone demineralization with vertical striation. Corresponding axial CT (G) image clearly demonstrated “polka dot” appearance due to the thickened vertebral trabeculae and PET (F), fused PET/CT (H) images showed moderate Ga-68 DOTATATE uptake (SUV_{max} = 5.8) involving the body and left posterior elements of the sixth dorsal vertebrae, consistent with aggressive vertebral hemangioma (arrows).

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PET/CT is an established imaging method for neuroendocrine tumors. Inflammatory diseases or malignancy could demonstrate increased Ga-68 DOTATATE uptake in the skeleton due to the low expression of somatostatin receptors in osteoblasts. The precise mechanism of Ga-68 DOTATATE uptake in benign bone lesions have not clearly identified yet. Increased Ga-68 DOTATATE uptake in bone hemangiomas is limited to case reports and is assumed to be secondary to the expression of SSTR receptors in endothelial cells^{1,2}. However, these lesions are not always Ga-68 DOTATATE-avid³. Increased Ga-68 DOTATATE uptake in aggressive bone hemangiomas should be kept in mind as a potential pitfall while evaluating Ga-68 DOTATATE PET/CT images.

Conflicts of interests

All the authors state that there were no conflicts of interests when the manuscript was written.

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