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PJR July - September 2016; 26(3): 266-267

Common FDG PET/CT Presentation But Uncommon Cause

Clinical History

This is a 37 years old male presented with history of fever and weakness. On basis of bone trephine, a FDG PET/CT was advised.

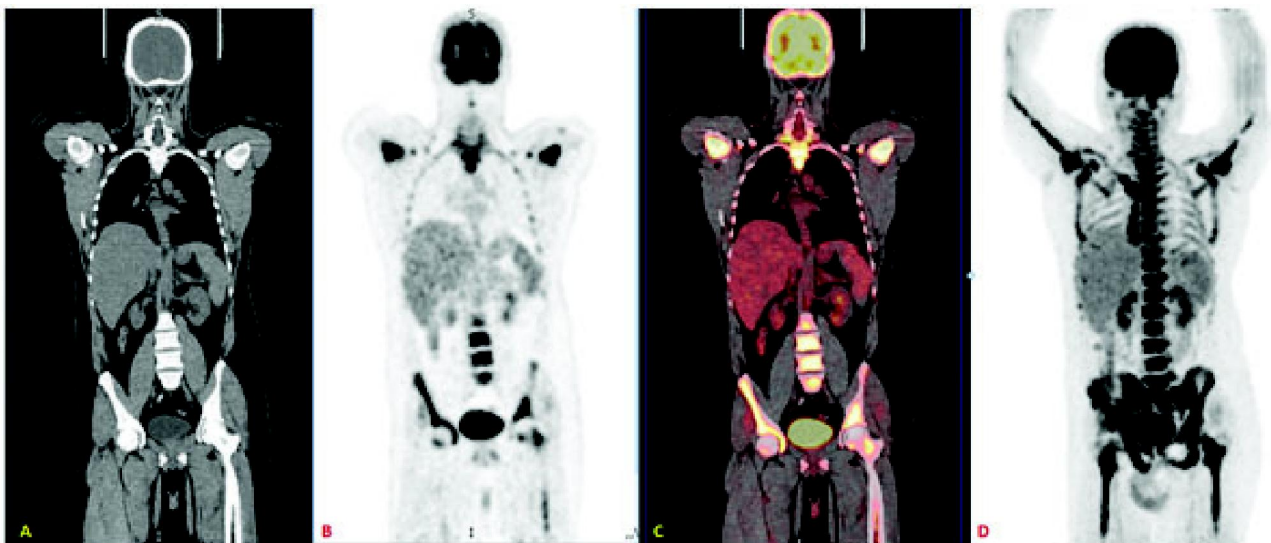


Figure: (A) Coronal Low Dose Non-Enhanced CT; (B) Attenuation Corrected Coronal PET; (C) Fused PET/CT Coronal; (D) MIP (Maximum Intensity Image)

Question

- Q1. Describe PET/CT scan findings?
- Q2. Differential diagnosis?

QUIZ

Answer

Scan shows generalized increased uptake of 18FDG in axial and appendicular skeleton. No hypermetabolic focus is seen in visualized viscera. This particular uptake pattern suggests diffuse marrow hypermetabolism like cellular hyperplasia or diffuse marrow infiltration. The most common causes are reactive marrow hyperplasia (normal hematopoietic cells) after chemotherapy or stimulation of marrow by granulocyte colony-stimulating factor in patients with leucopenia after chemotherapy. Less common causes are malignant lymphoma (non-Hodgkin type) and in patients with extensive bone metastases. However, this patient has no previous history chemotherapy or associated treatment, nor has any focal non-osseous hypermetabolic focus suggestive of primary neoplasm.

On trephine biopsy, he was found to have acute myeloid leukemia and FDG PET/CT was advised to see any extra-medullary involvement¹ and having a baseline scan for response evaluation.

Leukemia is an unusual cause of this type of FDG distribution pattern and must be included in the differential diagnosis.²

References

1. Rao S, Langston A, Galt JR, Halkar RK. Extramedullary acute myeloid leukemia and the use of FDG-PET/CT. *ClinNucl Med.* 2009; **34**: 365-6.
2. KA Maya , Nakamoto Y, Nakatani K, Ishimori T, Yamashita K, Takaori-Kondo A, et al. Increased bone marrow uptake of 18F-FDG in leukemia patients: preliminary findings. *Springer Plus.* 2015; **4**: 521-7