ROLE OF 18F FLUORIDE PET/CT IN THE DETECTION OF BONE METASTASES

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FDG-PET is a scintigraphic technique that provides three-dimensional information about the rate of glucose metabolism in the body and is a sensitive method for detecting, staging, and monitoring the effects of therapy for many malignancies.

CT uses an external source of radiation to provide three-dimensional images of the density of the tissues in the body. CT images provide information about the size and shape of organs and abnormalities within the body.

DISCUSSION:
Bone and bone marrow involvement may occur in both Hodgkin's disease and non-Hodgkin's lymphoma. The skeleton is a frequent site of relapse. Bone marrow infiltration may be a site of a primary disease or more often part of a disseminated disease, found in up to 40% of patients with non-Hodgkin's lymphoma at presentation.
Bone marrow involvement in Hodgkin's disease at presentation is rare but may be seen in 5–34% of patients later during the course of disease.
Primary lymphoma of bone is almost exclusively due to non-Hodgkin's lymphoma, usually involving a single bone.
Secondary involvement of bones, mostly the axial skeleton, may be seen in both non-Hodgkin's lymphoma and Hodgkin's disease.

Bibliography:
Textbook Of Bone Metastases
ACR Practice Guideline For Performing FDG PET/CT In Oncology

- Bone metastases are most common malignant bone tumor.
- Skeletal involvement occurs in 30%–70% of all cancer patients.
- Detection of tumor bone metastases is essential for optimal therapy.
- The purpose of imaging is to identify bone metastases as early as possible, to determine the full extent of disease, to evaluate the presence of complications that may accompany malignant bone involvement, to monitor response to therapy, and, occasionally, to guide biopsy if histologic confirmation is indicated.

45 years / female with B-Cell Lymphoma
- after chemotherapy CT can not accurately determine if changes in the D8-D9 are disabling or relic is lymphoma.
- PET CT examination demonstrates osteosclerotic lesion with FDG uptake, compatible with persistent malignancy.

Post irradiation PET CT confirm remission of metabolic bone lesions.

39 year-old woman with Hodgkin's lymphoma and extranodal involvement of skeleton. IRM images shows no detectable abnormality.