Clinical Image

A 72-Year-Old man with newly diagnosed prostate cancer (PSA:12.47ng/ml, Gleason score:3+3) underwent skeletal scintigraphy before treatment. Suspicious Tc-99m MDP uptake was seen on right hemithorax (Figure 1A). Due to suspicious Tc-99m MDP uptake on right hemithorax on bone scintigraphy, further investigation using 68Ga-PSMA PET/CT was suggested. 68Ga-PSMA PET/CT revealed increased heterogeneous uptake in the right posterolateral segment of prostate gland compatible with prostate needle biopsy findings (adenocarcinoma). 68Ga-PSMA PET/CT images showed non-expected slightly increased uptake (SUVmax:1.6) in the right hemithorax greater than mediastinal blood pool activity (SUVmax:1.2), corresponding to pleural thickening seen on the CT images (first intercostals space (Figure 1B) and neighbourhood of the 4 and 6 rib (Figure 1C) with normal lung parenchyma). Thoracoscopic biopsy was performed to establish a definitive diagnosis. The results of histopathological examination (excisional biopsy) indicated the features of chronic inflammation with focal mesothelial hyperplasia. There was no evidence of stromal invasion.

Prostate-specific membrane antigen (PSMA) is a specific type II membrane glycoprotein. We present the case of a 72-year-old man with newly diagnosed prostate cancer who had a 68Ga-PSMA PET/CT scan for staging. 68Ga-PSMA PET/CT images showed moderate uptake in the right hemithorax, corresponding to pleural thickening seen on the CT images. Histopathologic examination revealed the diagnosis of chronic inflammation. It is important to keep in mind other alternative diagnoses such as chronic inflammation when 68Ga-PSMA PET/CT identifies uptake at an atypical site.

Figure 1: Suspicious Tc-99m MDP uptake was seen on right hemithorax on bone scintigraphy images and the patient was admitted to 68Ga-PSMA PET/CT. Slightly increased uptake, corresponding to pleural thickening seen on the CT images (first intercostals space (Figure 1B) and neighbourhood of the 4 and 6 rib (Figure 1C), was seen in the right hemithorax on Ga-68 PSMA PET/CT images.
Chronic inflammation should be kept in mind when interpreting whole-body $^{68}$Ga-PSMA PET/CT images and $^{68}$Ga-PSMA avid lesions should be confirmed with tissue biopsy before treatment.

References