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Incidental Detection of Femoral Pseudoaneurysm at ^{18}F -FDG PET/CT

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Abstract

A 72-year-old man with history of lung cancer and melanoma was referred for routine follow-up with ^{18}F -FDG PET/CT. CT images showed a new mass in the right groin associated with mild FDG activity on ^{18}F -FDG PET images. Subsequent ultrasound obtained the same day demonstrated flow within the lesion to be a pseudoaneurysm of the right femoral artery.

Keywords

pseudoaneurysm; PET/CT; ultrasound; Doppler

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Figure 1.

A 72-year-old man with history of lung cancer and melanoma was referred for routine follow-up with ^{18}F -FDG PET/CT. The unenhanced CT images obtained for attenuation correction demonstrated a round-shaped lesion contiguous to the right femoral artery (white arrow in **A**).^{1,2} The lesion demonstrated mild FDG activity, SUV_{max} of 3.1 (white arrow in **B**; as a comparison, SUV_{max} of the left femoral artery and abdominal aorta were 1.8 and 1.6, respectively), and it was new since 6 months prior ^{18}F -FDG PET/CT scan (**C** and **D**). The patient medical history between the 2 PET/CT scans was relevant for a right femoral line placement while being hospitalized in the intensive care unit for a hemorrhagic shock.^{3–10} Subsequent ultrasound of the right groin performed the same day demonstrated a large pulsating rounded heterogeneous lesion with a predominant hypoechoic component (white arrow in **E**). Arterial Doppler wave forms were documented in the groin lesion, and color Doppler demonstrated blood flow with a typical swirling appearance known as the yin-yang sign indicating swirling of blood consistent with a pseudoaneurysm (white arrow in **F**).¹¹ The communication between the pseudoaneurysm and the femoral artery is known as the neck with the pathognomonic “to and fro” Doppler. Doppler spectral analysis showed an arterial waveform associated with a component of reversed flow (white arrowhead in **F**). These 2 components are usually named as “to” (white arrowhead) and “fro” (red arrowhead) bidirectional flow. The “to” component represents blood entering the pseudoaneurysm in systole; the “fro” component represents blood exiting the pseudoaneurysm during diastole.^{11–13}