

Cristina Nanni – Stefano Fanti

PET-CT: Rare Findings and Diseases

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 Springer

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Introduction

Positron Emission Tomography (PET) is an emerging functional imaging technique particularly useful in the diagnostic flow chart of oncological patients.

FDG is by far the most employed tracer, providing high accuracy for the detection of most malignancies. Other emerging tracers proven to have a significant impact on patient management are ¹¹C-methionine, ¹¹C-choline and ⁶⁸Ga-somatostatine analogues.

The increasing use of integrated functional (PET) and morphological (CT) imaging and the growing number of patients undergoing these procedures lead to the need for a great deal of experience in image interpretation, since incidental findings and comorbidities can cause misreading of images. This can also be enhanced by the nonspecificity of FDG and, to a lesser extent, other tracers. In these cases, experience, complete patient clinical history and interpretation of co-registered CT images can be crucial for providing correct results to clinicians and for reaching conclusive reports, which are usually expected from a second level imaging procedure such as PET/CT.

The aim of this atlas is, therefore, to provide concrete help for reading PET/CT images, presenting several cases characterized by unusual (but still quite common) incidental findings that can come to the attention of PET doctors during routine practice. Cases of rare diseases evaluated with PET are also included, in consideration of the constantly increasing number of clinical indications for PET imaging.

Each case is briefly described in a few lines, and the PET result is clarified with multiple images including MIP. In addition, axial, sagittal and coronal sections of CT and fused images centered on the finding of interest are provided.

Furthermore, a brief description of the pathological condition under evaluation is reported, including references from the scientific literature when necessary.

In conclusion, this atlas is aimed at helping physicians read PET/CT scans in their daily clinical practice. In our experience the key reason for a successful relationship with referring clinicians is reports of outstanding quality. This requires great expertise, but also the capability of recognizing unusual findings, as well as the knowledge of uncommon diseases that may be evaluated by PET scans. Our goal was to provide practical support for such situations.