FDG PET/CT in a Patient With Mantle Cell Lymphoma and COVID-19

Typical Findings

Margot Playe, MD,* Justine Siavellis, MD,† Thorsten Braun, PhD,‡ and Michaël Soussan, PhD*§

Abstract: A 52-year-old woman with no medical history was admitted on March 18, 2020, presenting since 3 days asthenia, abdominal pain, and dry cough but no fever. Adenomegalies, splenomegaly, leukocytosis, and elevated LDH suggested mature lymphoproliferation. Considering the current health context, an RT-PCR testing for COVID-19 (coronavirus disease 2019) was performed and found to be positive. Early chest CT showed no sign of pulmonary infection but multiple adenomegalies. An ^{18}F -FDG PET/CT performed 5 days later to assess the extent of the hemopathy revealed the apparition of FDG-avid bilateral ground glass and subpleural curvilinear opacities suggesting COVID-19-associated pneumopathy.

Key Words: COVID-19, SARS-CoV-2, positron emission tomography, chest computed tomography, mantle cell lymphoma

(*Clin Nucl Med* 2020;00: 00–00)

Received for publication April 8, 2020; revision accepted April 9, 2020.

From the Departments of *Nuclear Medicine, and †Hematology, Avicenne Hospital, Hôpitaux universitaires Paris Seine Saint Denis, AP-HP, France; and ‡UMR 1288, Laboratoire d'Imagerie Translationnelle en Oncologie (LITO), Inserm, Institut Curie, France.

Conflicts of interest and sources of funding: none declared.

Correspondence to: Playe Margot, MD, Department of Nuclear Medicine, Hôpital Avicenne, Assistance Publique Hôpitaux de Paris, University Paris XIII, 125 rue de Stalingrad, 93009 Bobigny, France. E-mail: margot.playe@aphp.fr.

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ISSN: 0363-9762/20/0000–0000

DOI: 10.1097/RLU.00000000000003113

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FIGURE 1. The association of clinical splenomegaly, axillary, and inguinal lymphadenopathies with high blood lactate dehydrogenase level and leukocytosis suggested mature lymphoproliferation. An ^{18}F -FDG PET/CT scan was performed. **A**, FDG PET MIP image. **B**, PET/CT fusion. **C**, Postcontrast chest CT axial slices. Thoracic and subdiaphragmatic lymph node involvement with high FDG uptake (SUV_{max} , 8.7; arrows). Note a major mesenteric infiltration (arrowheads). Inguinal lymph node biopsy specimen confirmed mantle cell lymphoma with high proliferative index ($\text{Ki67} = 70\%$).

FIGURE 2. FDG PET/CT (A) and chest CT (B) axial slices: bilateral ground glass opacities (arrows) and curvilinear opacities (arrowheads), with predominance in the posterior subpleural areas, suggesting installation of COVID-19–associated pneumopathy. These findings were associated with a moderate FDG uptake (SUV_{max} 4). This case illustrates the typical chest CT findings in COVID-19 recently described: possible negativity within the first 3 days of clinical onset in 50% of cases¹; multiple bilateral ground glass opacities, curvilinear subpleural opacities, and predominance in middle and lower lobes and posterior areas, septal thickening, and crazy paving pattern^{2–4}; and progressive transformation into multifocal consolidative opacities, with greatest severity about 10 days after the clinical onset.⁵ A study including 1014 cases in Wuhan (China) demonstrated the high sensitivity (97%) of chest CT for diagnosis of COVID-19.⁶ Radiologic evaluation of disease extent has also a probable prognostic implication.⁷ A lobar alveolar consolidation with adenomegalies should raise the diagnosis of bacterial coinfection. This case highlights the PET/CT features of COVID-19, in accordance with recent publications^{8,9}: FDG moderate to intense uptake, as commonly seen in pulmonary infections. Considering the heterogeneous clinical setup of the disease, the rapid increase in the number of cases worldwide, the rate of false-negative of RT-PCR (approximately 33%),⁶ and, finally, our patients' profile with severe comorbidities and potential immunosuppressive therapies, nuclear medicine specialists should carefully describe and report these patterns.