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## Case report

# A case of COVID-19 lung infection in a non-febrile woman followed for mantle cell lymphoma

*À propos d'une patiente apyrétique, suivie pour un Lymphome du Manteau, présentant une infection pulmonaire COVID-19+*

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A 72-year-old woman with a recent history of mantle cell lymphoma under chemotherapy (R-CHOP with fifth cycle realised on March 23rd) presented on April 1st to our hospital for confusion without fever. First exams revealed severe hyponatremia (Na = 109 mmol/L) and Coronavirus disease 19 infection confirmed by polymerase chain reaction (PCR). After receiving appropriate treatment for hyponatremia, she was treated with KALETRA and CEFTRIAXONE against COVID-19; however, she had no respiratory symptom. After being released from the hospital to a rehabilitation centre 10 days later, she came back in our institute on April 28th for persistence of neurologic symptoms (confusion) and biological inflammatory syndrome but still no respiratory symptom.

She was referred to our ward for a 18F-FDG PET-CT to assess: first, whether this inflammation was due to a recurrence of lymphoma (in partial metabolic response after 3 cycles: Deauville-scale score 4 on a right para-glottic area focus) or a deep infectious focus, especially the possibility of a COVID-19 still active more than 1 month after its discovery; then, an explanation to these neurologic symptoms.

On the 18F-FDG PET-CT scan [Fig. 1 (a)], no hypermetabolic focal uptake was detected on the brain parenchyma, nor in the abdominal or pelvic areas to suggest a deep focus of infection. In contrast, there were many foci of intense FDG uptake in both lungs [SUVmax of 6.8 in upper left lung and 5.6 in lower left lung; Fig. 1 (b–c)], corresponding to multiple pulmonary condensations and ground-glass opacities on CT [Fig. 1 (d–e)]. These morphological anomalies visualised on thoracic computer tomography and the clinical context confirmed the COVID-19 pulmonary infection [1]. Surprisingly, no mediastinal node showed significant increase uptake.

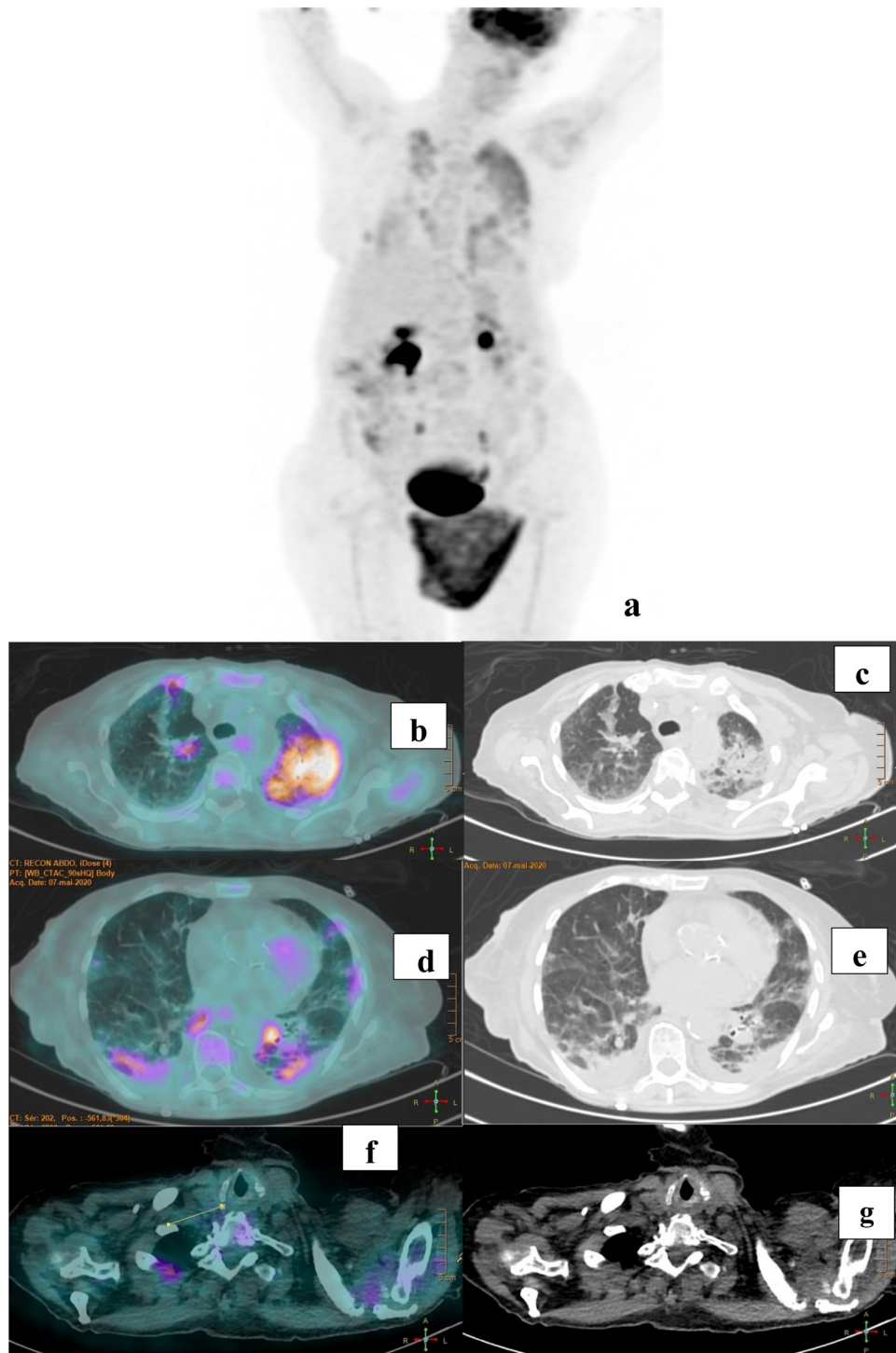
In addition, the previous hypermetabolic focus due to partial response of mantle cell lymphoma, located in right para-glottic area, showed no abnormal uptake [Fig. 1 (f–g)]; showing complete metabolic response on previous right para-glottic area (yellow arrow) with SUVmax = 1.4 vs. 3.3 in 02/2020; Deauville-scale score 2] [2], which allow us to state a complete metabolic response after 5 cycles of R-CHOP.

Additionally, no neurologic involvement was clearly identified on our exam. A brain MRI didn't find any abnormality.

In this time of COVID-19 pandemic, it is not unusual that oncologic patients are carriers of coronavirus or even suffering from COVID-19, and that some of these results will interfere with clinical observations. In our case report, both the complete metabolic response on lymphoma and the still active pulmonary infection more than one month after the diagnosis orient us to consider the COVID-19 pulmonary infection responsible of the persistent inflammatory syndrome, even if the patient presents no respiratory symptom.

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**Fig. 1.** MIP image and axial PET-CT and CT views of COVID-19 pneumonia and complete metabolic response of mantle cell Lymphoma (a): MIP image; (b): axial PET-CT of upper left lung pneumonia; (c): axial CT; (d): axial PET-CT of lower left lung pneumonia; (e): axial CT; (f): axial PET-CT of complete metabolic response of right para-glottic area; (g): axial CT.

*Image MIP et coupes axiales PET-TDM et TDM de la pneumopathie liée au COVID-19 et de la réponse métabolique complète du lymphome du manteau (a): image MIP; (b): coupe axiale TEP-TDM du foyer de pneumopathie lobaire supérieur gauche; (c): coupe axiale TDM; (d): coupe axiale PET-TDM du foyer de pneumopathie lobaire inférieur gauche; (e): coupe axiale TDM; (f): coupe axiale TEP-TDM montrant la réponse métabolique complète de l'aire para-glottique droite; (g): coupe axiale TDM.*

**Disclosure of interest**

The authors declare that they have no competing interest.

**References**

[1] Wang Y, Dong C, Hu Y, Li C, Ren Q, Zhang X, et al. Temporal changes of CT findings in 90 patients with COVID-19 pneumonia: a longitudinal study. *Radiology* 2020 [200843].

[2] Itti E, Meignan M, Berriolo-Riedinger A, Biggi A, Cashen AF, Véra P, et al. An international confirmatory study of the prognostic value of early PET/CT in diffuse large B-cell lymphoma: comparison between Deauville criteria and  $\Delta$ SUVmax. *Eur J Nucl Med Mol Imaging* 2013;40:1312–20.