

¹⁸F-prostate-specific membrane antigen positron emission tomography computed tomography incidental finding in a patient after COVID-19 infection

ABSTRACT

The COVID-19 pandemic has now reached most countries. However, the referred patients to a nuclear medicine department will be primarily the asymptomatic ones. We report the case of a patient (84-year-old male) who was sent for ¹⁸F-prostate-specific membrane antigen positron emission tomography computed tomography (PSMA PET-CT) with suspicion of recurrent disease after prostate cancer and total prostatectomy 2 years prior to the examination. He suffered from COVID-19 pneumonia 4 weeks prior to PET-CT examination. The ¹⁸F-PSMA PET-CT revealed moderate elevated uptake in the area of previous pneumonia in the right lung. The radiological findings showed ground glass changes in this area indicating possible residual inflammatory disease even weeks after infection.

Keywords: ¹⁸F-prostate-specific membrane antigen, COVID-19, infection, positron emission tomography computed tomography, prostate cancer

INTRODUCTION

The COVID-19 pandemic has now reached most countries. Emergency room and intensive care staff are at increased risk for infection, however, the referred patients to a nuclear medicine department will be primarily the asymptomatic ones. Therefore, good communication with referral physicians and safety measures are mandatory for the protection of other patients and staff.^[1,2]

In a recent publication, it was suggested that ¹⁸F-fluorodeoxyglucose positron emission tomography computed tomography (PET-CT) can identify COVID-19 cases in the absence or before symptom onset and may guide patient management.^[3]

CASE REPORT

We report the case of a patient (84-year-old male) who was sent for ¹⁸F-prostate-specific membrane antigen (PSMA) PET-CT with suspicion of recurrent disease after prostate

cancer and total prostatectomy 2 years prior to the examination. The patient suffered from COVID-19 pneumonia 4 weeks prior to PET-CT examination.

The examination was performed as elsewhere described.^[4] Briefly, PET-CT images were performed 1 h after intravenous injection of 248 MBq ¹⁸F-PSMA on a PET-CT scanner (Siemens Healthineers, Erlangen) and the images were analyzed on a Syngovia Workstation (Siemens

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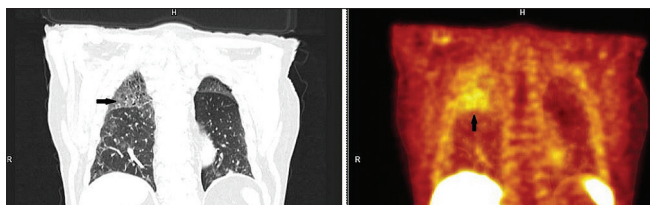


Figure 1: ¹⁸F-prostate-specific membrane antigen positron emission tomography computed tomography (84y, male) displays a diffuse moderate uptake in the right lung (SUV_{max} 2.6), in topographic correlation to ground glass opacities consistent with residual inflammation (black arrows), 4 weeks after COVID-19 infection

Healthineers, Erlangen). The ¹⁸F-PSMA PET-CT revealed moderate elevated uptake in the area of previous pneumonia as shown in Figure 1. The patient had no respiratory symptoms and no other signs of infection at the time of PET examination. The radiological findings showed ground glass changes in this area. These pulmonary findings were interpreted as remaining inflammatory changes in an already recovered patient after Covid-19 infection, as it has been ascribed to PSMA uptake in inflammation elsewhere.^[5]

CONCLUSION

To the best of our knowledge, this is the first case report with a pathological pulmonary uptake of a PSMA ligand with PET-CT in COVID-19 patients, indicating possible residual inflammatory disease even weeks after infection.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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