

LETTER TO THE EDITOR

Abnormal PET scan result after recent COVID vaccination

To the Editor,

Since the COVID-19 (coronavirus disease of 2019) vaccination has become available, it has been widely recommended that patients undergoing chemotherapy receive the COVID vaccine. The benefits of immunity to COVID-19 largely outweigh any potential risk of the infection in the immunosuppressed population.¹ There are limited reports available on the radiological effects of the COVID-19 vaccine in patients who have undergone chemotherapy.


We describe a case of a 16-year-old female with a false-positive positron emission tomography (PET) scan result following recent COVID-19 vaccination in left deltoid. The patient was treated for Hodgkin lymphoma (nodular sclerosing type), stage IIA bulky disease as per National Comprehensive Cancer Network guidelines, and completed four cycles of doxorubicin, bleomycin, vinblastine, and dacarbazine. She was also treated with radiation (1950 centigray) to the mediastinum after chemotherapy. She tolerated both treatments well, with minimal side effects.

Approximately 6 months after the completion of radiation therapy, she underwent a routine PET surveillance scan. This scan showed newly enlarged left axillary lymph nodes, measuring up to 1.6 cm from 6 mm that are fludeoxyglucose (FDG) avid with standardized uptake value (SUV) of 10.6 (Figure 1). The lymph nodes are normal in morphology. There was also increased activity in the left lateral deltoid muscle, with SUV of 2.9. It was confirmed with the family the patient had received COVID vaccination in the left deltoid muscle 48 h prior to the PET scan. This was not known prior to the PET scan being done.

Physical examination did not reveal any enlarged lymph nodes and routine surveillance laboratory tests showed ferritin 12 ng/mL and erythrocyte sedimentation rate 9 mm/hr.

At this time, there is limited literature reporting the PET scan findings in patients with Hodgkin lymphoma related to COVID-19 vaccination. We believe that this patient had a false-positive PET scan due to recent COVID-19 vaccination. At this time, no further biopsy is warranted due to lack of palpable disease and normal morphology on PET scan and deltoid involvement. Further research and additional patients will be needed to identify the length of time needed prior to obtaining a PET scan after COVID vaccination to avoid false positives.²

A transient increase in FDG uptake in ipsilateral axillary, supraclavicular, and cervical lymph nodes following intramuscular deltoid vaccination is recognized to be associated with several vaccinations including seasonal influenza, pneumococcal, tetanus, diphtheria, pertussis, human papilloma virus, and more recently, COVID-19. The extent of FDG uptake typically lessens with greater time since reported vaccination. Some preliminary research suggests, when clinically appropriate, to perform PET scans before or between 2 and 6 weeks after vaccination with oncology patients for which interpretation of imaging is likely to be impacted by the vaccine-associated changes.³ There are reported cases of women with abnormal mammograms after the covid vaccine.⁴ Further data are necessary to determine these expected radiologic changes and appropriate timing of imaging following COVID-19 vaccinations, particularly in patients with lymph node predominant diseases, such as lymphoma. This will help guide management, provide reassurance to both clinicians and patients, and avoid unnecessary imaging or biopsies.

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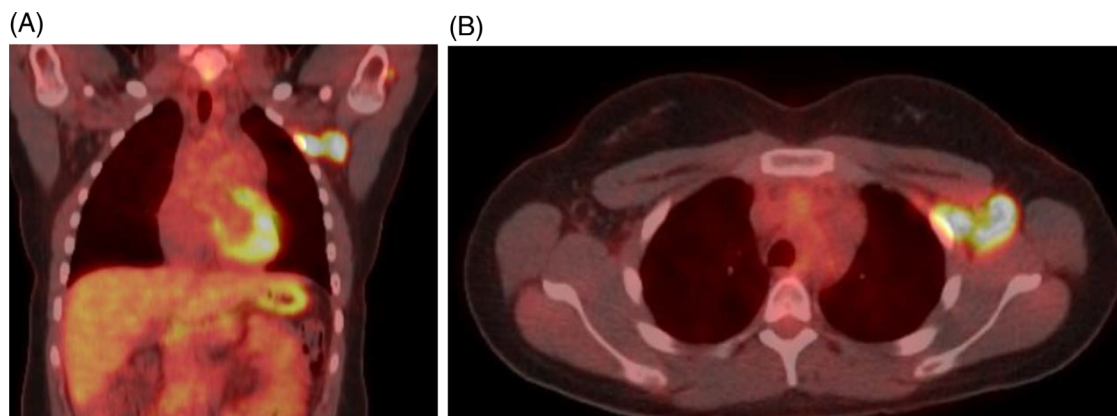


FIGURE 1 (A) Six-month posttherapy surveillance PET scan with left axilla avidity. (B) Cross-sectional view of left axilla avidity

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