



CASE REPORT

Axillary Adenopathy Secondary to SARS-CoV-2 Vaccination: a Case Report

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Abstract

SARS-CoV-2 mRNA vaccines are safe and effective for the prevention of COVID-19 infection, though local reactions are commonly reported. Axillary lymphadenopathy has also been reported, which has the potential of causing diagnostic confusion and unnecessary testing and procedures. A 58-year-old female with untreated latent tuberculosis was noted to have a pulmonary nodule on chest radiograph. Evaluation for *Mycobacterium tuberculosis* was undertaken, and a FDG PET/CT was performed to rule out malignancy. While the nodule demonstrated low avidity, highly avid lymph nodes were noted in the left axillary region. Further questioning elicited a recent history of mRNA-1273 (Moderna) COVID-19 vaccination in her left deltoid muscle 3 weeks prior and a sensation of axillary fullness. She was managed conservatively with spontaneous resolution of her lymphadenopathy. Axillary lymphadenopathy following mRNA vaccination has been reported and appears to be more common with mRNA-1273 (Moderna) than BNT162b2 vaccine (Pfizer-BioNTech), in those aged 18 to 64 as compared to age ≥ 65 , and following the second vaccine dose compared to the first dose. Vaccination should be considered in the differential diagnosis of axillary lymphadenopathy, particularly ipsilateral to the vaccination site, to avoid unnecessary testing, treatment, and patient anxiety.

Keywords SARS-CoV-2 · mRNA vaccination · Lymphadenopathy · COVID-19 · Case report

Introduction

Vaccination against SARS-CoV-2 has been shown to be both safe and effective for the prevention of COVID-19 infection and progression to severe disease [1, 2]. Local reactions (e.g., vaccination site pain, swelling, redness) in these clinical trials were common following vaccination with SARS-CoV-2 mRNA vaccines, and these reactions were typically mild and self-limited. Axillary lymphadenopathy following vaccination has also been reported and may lead to diagnostic confusion and unnecessary and invasive testing.

Case Description

This case describes a 58-year-old female with a past medical history of untreated latent tuberculosis infection (LTBI) with a complaint of chronic shortness of breath, who was referred to pulmonary clinic for evaluation. Chest radiograph demonstrated a 9-mm well-circumscribed nodule in the right mid-lung. Given her history of LTBI, three induced sputa for acid-fast bacilli smear and culture were sent, along with *Mycobacterium tuberculosis* PCR which were all negative. Computed tomography (CT) 1 month later showed persistence of the nodule with dense, eccentric foci of calcification, thought due to prior granulomatous disease or malignancy. She then received her first dose of mRNA-1273 (Moderna) COVID-19 vaccination in her left deltoid muscle. Nineteen days later, an FDG PET/CT done to evaluate the pulmonary nodule demonstrated low avidity of the pulmonary nodule, but did show several enlarged and avid left axillary lymph nodes up to 1.5×1.2 cm (asterisk), without evidence of mediastinal, hilar, or other adenopathy (Fig. 1).

In outpatient follow-up 26 days following vaccination, she denied fevers, sweats, weight loss, cough, chest pain, or

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shortness of breath, but noted some fatigue and mild axillary fullness. She denied sick contacts, animal exposure, or recent travel. She received her second dose of vaccine 29 days after her first dose. At a follow-up appointment 1 week later, the left axillary fullness was slightly worse and felt like a “tennis ball under the arm.” Physical exam was notable only for left axillary lymphadenopathy with mild tenderness. The patient was felt to have axillary adenopathy secondary to COVID-19 vaccination and was managed supportively, with spontaneous resolution of her axillary fullness.

Conclusions

Axillary adenopathy is a reported side effect of SARS-CoV-2 vaccination. The clinical trial for the mRNA-1273 vaccine (Moderna) solicited for the presence of axillary swelling and/or tenderness, with 10.2% of vaccine recipients and 4.8% of placebo recipients reporting this adverse event [1]. The BNT162b2 vaccine (Pfizer-BioNTech) did not solicit for this adverse event, but reported lymphadenopathy in 0.3% of vaccine recipients and <0.1% of placebo recipients with resolution generally within 10 days [2]. When evaluating the safety of the BNT162b2 vaccine, Barda et al. noted an excess of 78.4 cases of lymphadenopathy per 100,000 vaccinated persons as compared to unvaccinated controls [3]. In certain patient populations undergoing workup for infection, malignancy, or cardiac conditions, the axillary lymph node avidity on PET scan following SARS-CoV-2 vaccination can produce uncertainty and lead to unnecessary testing, treatment, and patient anxiety [4, 5].

In cases of axillary adenopathy, physical examination of the upper extremity, ipsilateral breast, and thoracic wall should be undertaken, as the axilla is a site of lymphatic drainage for these structures [6]. The etiology of axillary adenopathy includes infection (e.g., tuberculosis, tularemia, sporotrichosis), malignancy (e.g., breast cancer, skin cancer,

lymphoma), autoimmune, or inflammatory reactions (e.g., silicone breast implants) [7]. At the time of initial evaluation, these diagnoses were considered. In reactivation pulmonary TB disease secondary to *Mycobacterium tuberculosis*, the most commonly affected draining lymph nodes are hilar and mediastinal, which were unremarkable in this patient. Infection related to animal contact, soil, or insect bites were felt to be unlikely given her lack of exposure history. Lymph node biopsy for evaluation of malignancy such as breast cancer with axillary metastasis or lymphoma was not indicated given the absence of a concerning primary focus on PET-CT and the acuity of onset for her lymphadenopathy. This patient had spontaneous resolution of her adenopathy without therapy.

Providers should be aware that axillary adenopathy, particularly ipsilateral to the vaccination site, may occur following a robust immune response to vaccination for COVID-19, and the prognosis for spontaneous recovery is excellent.

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Author Contribution AK contributed to literature review, manuscript preparation, and patient care. HI contributed to literature review, manuscript preparation, and patient care.

Data Availability Not applicable.

Code Availability Not applicable.

Declarations

Ethics Approval Not applicable.

Consent to Participate Not applicable.

Consent for Publication Patient has provided consent for publication of this case.

Conflict of Interest The authors declare no competing interests.

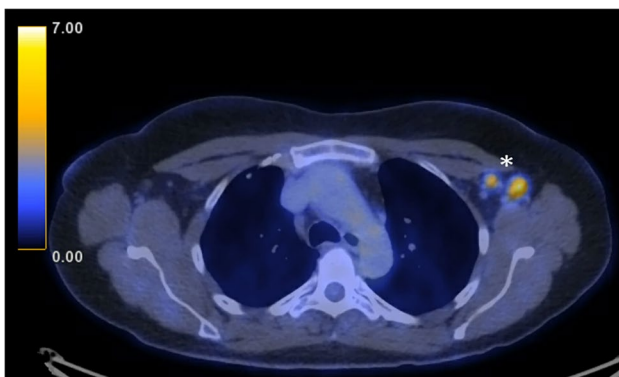


Fig. 1 FDG PET/CT of the lungs demonstrating highly avid left axillary adenopathy following ipsilateral mRNA-1273 vaccination

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