Bilateral Avid Axillary Nodes on FDG PET/CT Due to Concurrent Booster COVID-19 Immunization and Seasonal Influenza Vaccination

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Abstract: In an attempt to protect the high-risk demographic and reduce burden on health care systems, concomitant administration of COVID-19 and influenza vaccines has been recommended by health bodies. The ComFluCOV trial indicates this is well tolerated with no reduction in immune response to either vaccine. A 48-year-old woman with right oropharyngeal squamous cell carcinoma underwent postradiotherapy FDG PET/CT, which demonstrated complete metabolic response. Incidental avid bilateral axillary lymphadenopathy of benign configuration was noted and concluded to be reactive in response to recent Pfizer-BioNTech booster and influenza vaccination. This is expected to be seen more frequently over the coming months.

Key Words: influenza vaccination, concurrent, COVID-19 booster, ^{18}F-FDG PET/CT, pitfall, axillary lymph nodes, inflammatory/reactive

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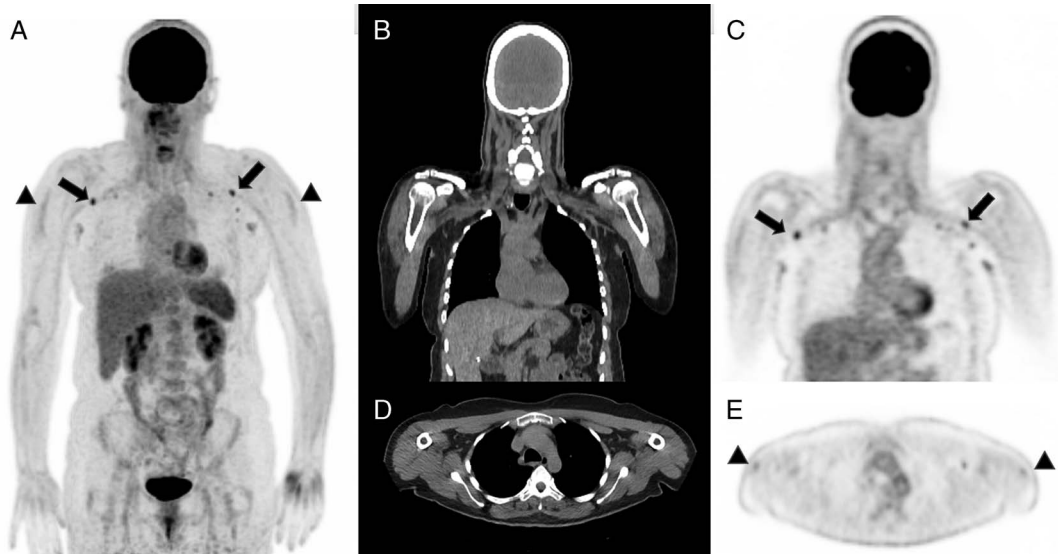

FIGURE 1. A 48-year-old woman with right oropharyngeal squamous cell carcinoma. A half-body (skull vertex to midthigh) follow-up FDG PET/CT scan postradiotherapy for response assessment; MIP (**A**) demonstrated a complete metabolic response at the primary site. Bilateral moderately avid axillary nodes were noted (arrows). These are clearly demonstrated on the coronal CT and PET images (**B** and **C**). Since the start of COVID vaccinations in December 2020, we have added a question about recent vaccination on our institute's clinical history questionnaire to avoid misinterpretation of the now commonly documented reactive nodes associated with immunization.[1,2] We make note of the type, date, and site of injection.[3] On reviewing this, it was found that the patient has had a recent Pfizer-BioNTech booster in the left upper arm 2 days before the scan and the seasonal flu vaccination in the right upper arm 5 days earlier. Sites of injections can be seen on Figures **A**, **D**, and **E** (arrowheads). The COVID-19 vaccines have proven to reduce morbidity and mortality caused by the virus; however, the levels of protection decrease gradually over time. Booster doses are therefore advised by the Joint Committee on Vaccination and Immunization to maintain high levels of immunity through winter, starting with the high-risk demographic.[4,5] Anticipating the overlap with seasonal influenza vaccination programs, which is highly encouraged given the anticipated high rates, the ComFluCOV trial investigated the coadministration of the influenza and COVID-19 vaccines despite the 2020/21 influenza season international recommendations to have a 1- to 2-week interval.[6] They found this well tolerated, with no effect on immune response to either vaccine.[7,8] The aim is to reduce the burden on the health care systems and encourage timely vaccination. Bilateral reactive axillary lymphadenopathy related to vaccination should be considered when interpreting PET/CT cases.[9,10]